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Educational Psychology

A BOOK OF READINGS

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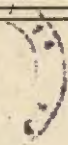
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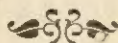




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Educational Psychology

A BOOK OF READINGS

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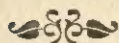
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PREFACE



The rationale for this collection of readings rests on the conviction that there is unique pedagogical value in acquainting the student with a wide range of professional periodical literature. The periodical article appears to offer something that is precluded by limitations of scope and length from the educational-psychology textbook: a complete statement of a research experience or a discursive argument. Such material is particularly useful in aiding teachers and prospective teachers to become increasingly creative and critical in their thinking about the psychological dimensions of the educative process.

The descriptions and interpretations offered in most educational-psychology textbooks serve valuable introductory and summarizing functions. The student must understand, however, that such texts are secondary sources for an educational science. Unless he learns to interpret and assess empirical educational research reports and analyses and statements of points of view, the textbook may become a source of professional dogma rather than the introduction and stimulation to educational thinking that its author intended.

The present collection of readings in educational psychology purports to provide the student with original materials from widely dispersed sources. With minor exceptions, each of the forty-six articles is reprinted in its entirety.

The selection of articles for inclusion was governed largely by three general criteria: (1) direct relevance to the educational context and to major educational problems and issues; (2) coverage of the topics commonly found in educational-psychology textbooks; and (3) representation of differing points of view. These criteria are so broad and the locus of educational psychology is so variously defined that the final selection of articles is still somewhat arbitrary and reflects, inevitably, some subject-matter preferences of the editor. This bias is explicit at two points. The selections relating to teachers' perceptions of child behavior are included because of the conviction

that these phenomena are crucially significant for the young teacher. The materials found under the rubric of "learning" are limited to motivational and transfer behavior on the assumption that these dimensions are most immediately relevant to the teacher's task. Critical evaluation of the contents (including numerous alternative selections) by a large number of colleagues indicates, however, that the present selections will be meaningful to most instructors and students.

Since two of the selections do not originate in the periodical literature, a word of explanation is in order. The study by Maccoby and her associates was written for *Readings in Child Development*, edited by William E. Martin and Celia B. Stendler (Harcourt, Brace and Co., 1954). It is reprinted here not only because of its unusual significance but also because it has, in format and nature, the character of periodical literature. The excerpt from the Midcentury White House Conference on Children and Youth represents material that could not be found in the periodical medium.

The major indebtedness of the editor is to the authors of the articles reproduced here. Most of the labor involved and all of the insight offered were contributed by them. Their willingness to have the selections reprinted is gratefully acknowledged, as is the courtesy of the several publishers who gave the necessary permission to use copyrighted material. A large measure of any virtue found in the organization of this collection must be attributed to the many instructors who provided valuable criticism and suggestions during the attempt to arrive at a useful content and organization. To mention some of them would be an injustice to many more. The editor also wishes to acknowledge his special gratitude to Professor Irving Lorge, of Teachers College, Columbia University, who offered cogent and extremely helpful advice on the general rationale for such a volume; to Professor Lawrence G. Thomas, of the School of Education, Stanford University, and Mr. Stanley Burnshaw, of The Dryden Press, who helped resolve some vexing categorization problems; to the librarians of the Cubberly Library, Stanford University, for their competent and always willing assistance; and particularly to Jane Coladarci, whose patience is apparently inexhaustible.

ARTHUR P. COLADARCI

Stanford University
February 15, 1955

For the convenience of instructors and students who may use this volume in connection with a basic textbook, an attempt is made, on the next two pages, viii to ix, to correlate the selections with the relevant chapters in several recent educational-psychology textbooks. These correlations are intended as suggestions only; many instructors will derive relationships more appropriate to their purposes and methods.

The left-hand column lists the textbook chapters; the other columns identify, by number, the selections that are relevant to each chapter. The textbooks represented are:

- Blair, Glenn M., Jones, R. Stewart, and Simpson, Ray H., *Educational Psychology*, Macmillan, 1954.
- Cole, Lawrence E., and Bruce, William F., *Educational Psychology*, World, 1950.
- Cronbach, Lee J., *Educational Psychology*, Harcourt, Brace, 1954.
- Garrison, Karl C., and Gray, J. Stanley, *Educational Psychology*, Appleton-Century-Crofts, 1955.
- Remmers, H. H., Ryden, Einar R., and Morgan, Clellen L., *Introduction to Educational Psychology*, Harper, 1954.
- Skinner, Charles E. (ed.), *Elementary Educational Psychology*, Prentice-Hall, 1950.
- Skinner, Charles E. (ed.), *Educational Psychology*, Prentice-Hall, 1951.
- Stephens, J. M., *Educational Psychology*, Holt, 1951.
- Trow, William C., *Educational Psychology*, Houghton Mifflin, 1950.
- Witherington, H. Carl, *Educational Psychology*, Ginn, 1952.
- Woodruff, Asahel D., *The Psychology of Teaching*, Longmans, Green, 1951.

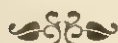
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Psychology Texts with Selections in This Volume

| Skinner (1950) | Skinner (1951) | Stephens (1951) | Trow (1950) | Witherington (1952) | Woodruff (1951) |
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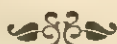
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Chapter One

PSYCHOLOGY AND EDUCATIONAL PRACTICE



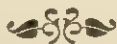
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G. LESTER ANDERSON

Theories of Behavior and Some Curriculum Issues

The science of psychology and the practice of education are both concerned with behavior and behavior change, and no one would deny that the two areas have a necessary relationship to each other. One of the perennial controversies in educational psychology, however, has to do with the *nature* of this relationship.

Very early in his psychological training, the student discovers that there are several differing answers, among psychologists, to the question of how learning occurs. And the implication is that there are at least as many theories of educational practice. Clearly, the theory of behavior held by the teacher has consequences for the way in which he views his task. Conversely, any educational theory must involve at least an implicit theory of behavior. In the following article, Professor G. Lester Anderson presents his interpretation of two general psychological views of behavior and one "non-psychological" conception and shows how each leads to different educational implications.



When Hilgard ⁴ (p. 326) tells us that "there are no laws of learning which can be taught with confidence," and that "even the most obvious facts of improvement with practice and the regulation of learning under reward and punishment are matters of theoretical dispute," we should not be surprised that curriculum, which rests

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in considerable measure upon our concepts of what is valid in the psychology of learning, is itself confused and uncertain. A theory of the nature of the human organism and how it behaves and learns is central to any theory of the nature of curriculum, and curriculum issues must be settled in part according to what we believe about human nature.

The contribution which the scientific study of human behavior and systematic formulations of generalizations concerning it have made to the curriculums of the contemporary school at all levels is not inconsiderable. This whole symposium stands as an illustration of psychology's contribution to curriculum. On the other hand, research and generalizations concerning human behavior have not produced a universally acceptable theory. Consequently, the various and diverse curriculums which are current often find their justification, in part, in theories of behavior which are various and diverse as well as current.

For the purpose of dealing explicitly with the topic of theories of behavior and curriculum issues, we shall consider two basic concepts of the nature of the human organism and within the second of these, two subsidiary but clearly differentiated concepts. The traditional concept of man is that of a 'free soul.' By this we simply mean man is a rational creature, endowed with a soul (independent of the body) and free as a moral agent. This shall be the first of our two basic concepts. The second is that of man as a 'dynamic lawful system.' This is psychology's concept. Within this basic concept, man may be viewed either as a 'machine,' largely subject to the laws of environment; or, man may be viewed as a 'dynamic force,' not quiescent, but one energy system interactive with other energy systems which are the environment.

Man as a free soul is a concept which has ancient and honorable lineage ¹ (Ch. I-VII). It conceives of man's behavior as being manifest in bodily response but controlled by mind. Here we have the familiar dualism of mind and body. Man's mind or soul is incorporeal, not subject to material laws, but obedient to spiritual laws that are without analogy in the physical world. This concept of man is still pervasive in our culture and has a respectable intellectual status, even though it seems to be without a respectable psychological status. Psychology, adopting parsimonious concepts, feels that it can describe man without recourse to non-material

concepts. Only that which is knowable and verifiable through sense perception has psychological validity. The curriculum which has meaning under the concept of man as a free soul is the traditional liberal curriculum. It is a curriculum of discipline and of work for its own sake. Subjects have meaning not primarily because their content has meaning, but because they have generalized disciplinary value. Work has virtue, not because it fosters accomplishment but because it has 'spiritually healthy' correlates. The body with its physical appetites and demands is recognized, but the satisfaction of these demands is a secondary problem. Acquisition through training of ways to meet these physical needs is a problem of minor educational significance. Education is primarily intellectual, not as the scientist conceives of intellect but rather as the classical humanist conceives it—which includes intellectualizing the emotions and exalting 'things of the spirit.'

In answering questions which the psychologist might pose concerning issues which are important to him, issues of capacity, motivation, practice, and transfer—the following statements might be made by the person who holds to a free soul concept of human behavior:

- 1) All individuals have the potentialities to become educated.
- 2) Motivation must be raised from the level of material needs to those of spiritual needs. Needs which the psychologist might label as basic must often be uprooted, and value systems that are often non-material must be established.
- 3) Practice or drill has significance, not so much because it establishes right responses, but because it disciplines the individual to habits of work.
- 4) Education and transfer are in a sense synonymous. The educated person has not necessarily learned the specific responses essential for specific situations but makes adjustments to the exigencies of life because he intuitively senses what will be the appropriate conduct. Generalized ability to think marks the educated man.

The concept of human nature and of education which we have so briefly sketched has little psychological standing, but that it has standing in our culture dare not be denied. The professional educationist perfunctorily dismisses these concepts, but he is unrealistic

in his approach to educational and curriculum issues of our age when he does so.

The psychologist treats of man as a dynamic, lawful system. American psychology has divorced itself from philosophy. Man is observed as any other scientific phenomenon is observed, and only conclusions which are within the boundary of scientific verifiability have status insofar as the psychologist's theory of human behavior is concerned. However, psychologists, within the boundary lines which they have drawn and agreed upon, have two fundamentally opposed concepts of human behavior. Hilgard has made clear the contrasts in his *Theories of Learning*.⁴ He, along with others, acknowledges two basic systems, association systems and field systems. These are systems of behavior as well as systems of learning.

The association theorist⁷ (Ch. I-IV), with his paradigm of stimulus-response and the S-R bond, makes of man a machine. The environment plays upon man, feeding him stimuli through the avenue of his sense organs. As a result, of a sort of mechanical sorting, responses emerge as muscle contractions and glandular secretions. The ultimate expectation of the association theorist is that he will be able to predict behavior by mathematical formulae, quantitative in character, the variables of which are largely environmental. The variables on one side of the equation are derived from environmental observation, those on the other from observations of overt (hence extra-human organism) responses.⁵

A curriculum tailored to association theory has simplicity. The responses which are desirable and which mark the educated person are identified. The stimuli which lead to these are likewise identified. Stimuli are presented, the response is in some way elicited and fixed. The educational problem is solved. The appropriate response is elicited and fixed through the familiar procedures of conditioning or of tolerable repetition, i.e. repetition plus the operation of the law of effect. Curriculum is concerned with the specific responses that the human being needs in order to react appropriately to the multiplicity of situations he may face in life. Because curriculum is concerned with responses, the stress is on product rather than organic process. The familiar procedures of job analysis, inventorying areas of living, and so on, as methods of determining curriculum have their validity under this psychological concept of human behavior.

If the psychologist again asks his questions concerning capacity, motivation, practice, and transfer he gets these answers:

1) Individual differences in capacity may be recognized but they are secondary to the system. Environment is primary.

2) Motives are themselves stimuli which may be controlled from without.

3) Practice is fundamental, particularly when coupled to the law of effect.

4) Transfer, while acknowledged, cannot be counted upon. It is better to anticipate the response needed for a situation and to establish it directly.

This concept of human behavior, with man conceived as a machine, which we have here sketched and its concomitant curriculum are now generally prevalent in American education. This statement may not always be explicitly acknowledged, but analysis of textbooks and workbooks, of courses of study and units of work, as well as of processes of instruction, would substantiate the statement.

The field theorist⁷ (Ch. V, VI) in psychology looks upon man as an energy system attempting to maintain dynamic equilibrium with other energy systems which interact with him through his sense organs. The physical model is not a machine but such other energy systems as the whirlpool, soap bubble, or candle flame⁴ (p. 14). Man is conceived as an adaptive creature; cognition and anticipation are important in making adaptive responses; the dynamics of growth are more significant than status at a given time; responses are not necessarily selected out of a repertory of previously acquired responses but represent a reorganization of behavior in terms of present demand; in short, the integrated, cognitive character of adaptation is the primary fact of human behavior.

A curriculum which has validity for this theory is more difficult to describe than the curriculum which is correlated with association theory, in part because we have no clear-cut model. The theory is relatively new, is just becoming understood by educators, and its curriculum implications have not been fully derived. We shall make a few inferences concerning the curriculum which may ultimately be so derived. Probably a specific content for such a curriculum is not essential. The organism must have opportunity to interact in order to learn patterns of adaptation, and emphasis is

on process rather than on product. The 'how' is as significant as the overt observable response.* Stress is on integrated learning, but the process and location of the integration remains unclear.

Answering once again the questions concerning capacity, motivation, practice, and transfer the field theorist says:

1) Individual differences are recognized and the rôle of the individual in the learning process is crucial. Maturation is a basic concept.

2) Motivation is at the center of the curriculum because it is in response to basic needs that man adapts and learns.

3) Practice is not synonymous with repetition. The individual makes successive attempts at adjustment, but his responses are each one modifications of previous responses. Effect is not an imposed reward or punishment but an internal sensing of the adequacy or inadequacy of response in terms of motivation.

4) All responding is in a sense a transfer effect in that all situations are new but, responses are in terms of reorganization of previous modes of response.

Field theory and the curriculum to be derived from it does not yet have the clear-cut structure which association theory and its derived curriculum possess. As we implied earlier, this may be due in part to the relatively recent discovery of the theory by the educator. It may also be that the theory is actually more complex than is association theory. Perhaps we all must be patient while this 'field theory curriculum,' which may be thought of as being in its infancy, reaches its maturity under the stresses and strains, that is the stimulation, of educational dynamics with time as an important dimension of this maturation process.

We have sketched three concepts of human behavior. We have suggested the curriculum for which each theory provides a psychological rationale. We have told how each theory answers certain questions concerning capacity, motivation, practice, and transfer.

How now can we deal with contemporary curriculum issues? As we might suspect, no curriculum either in theory or practice is

* For example, we are more interested that the child 'think out' the response to $2 + 2$, i.e. that he see the meaning of 4 as the appropriate response to $2 + 2$, than that he automatically fixate 4 as the response by associative learning. See 2 and 6.

completely consistent with a given theory of behavior. If we accept Caswell's classification and analysis of curriculum as scientific subject-matter, broad fields, areas of living, or emerging³ (197-208), we will find that each of these curriculums possess certain strengths and certain limitations to proponents of each of the theories of behavior. Behavior theory and curriculum theory have not perfectly meshed. A subject-matter curriculum perhaps has given and continues to give most comfort to those who view man as a free soul. The broad fields curriculum achieves a certain integration but a limited one. It gives no assurance of integrated, adaptive behavior to the field theorist. Areas of living curriculums seem most valid to those who stress relevancy to specific demands, who have little faith in transfer, and who place a premium on motivation. The emerging curriculum is consistent with field theory concepts of development but it gives little recognition to cognition and generalized behavior processes. This type of evaluation of curriculum in terms of behavior theories is merely suggestive and fragmentary. An adequate evaluation would necessitate detailed analysis. What, for example, are the psychological assumptions underlying Harvard's report on *General Education for a Free Society*, and the Educational Policy Commission's *Education for All American Youth*?

The problem of curriculum issues and behavior theory may be dealt with better if expressed as issues of objectives, scope, sequence, and organization. What inferences concerning these issues can be made from behavior theory? The following statements are made not as positive assertions, but rather as tentative hypotheses concerning these issues and behavior theory.

A curriculum which develops man as a free soul is limited and narrow in its objectives. It is unitary in its scope. Sequence is not highly significant, although logically derived. The curriculum is also characterized as having a logical organization. Association theories are consistent with a curriculum for which the objectives are multiple and varied. The scope of the curriculum is broad, diversified, but often fragmented. Sequence is logically determined, and organization is frequently logical although it may be in terms of functional relations. Field theories are consistent with a curriculum for which the objectives are generalized rather than specific, although these objectives are not essentially unitary. The scope of the curriculum is determined by a study of the organism rather

than by an analysis of the environment. Sequence is perhaps secondary to the ongoing integration of experiences—that is, the activity of the learner determines a sequence which is not always predictable rather than having a sequence determining the activities. An organization which is often characterized as psychological rather than logical seems to characterize this curriculum.

A quite different pattern of behavior theories as they relate to curriculum issues could be worked out and have as great validity as does this presentation. This approach is but one of several which might have been made. Our chief purpose has been to demonstrate that a relationship exists but that this relation has not been fully sensed and exploited by those who make curriculums. We have also avoided committing ourselves to a particular point of view in the area of behavior theory or of defending certain hypotheses as related to curriculum issues. It would be an error to infer that we are without conviction. We have deliberately been descriptive rather than argumentative because we have felt that the more important purpose at this stage is to point out relations which are too often unclear rather than to provoke further controversies among many who do not sense one area from which data may be drawn to settle old issues.

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GLENN M. BLAIR

How Learning Theory Is Related to Curriculum Organization

The research of psychologists, both in education and in other fields, has produced insights and principles of considerable value to all aspects of educational practice. The student who becomes preoccupied with the theoretical *disagreements* among psychologists sometimes loses sight of this fact. Professor Glenn M. Blair's discussion indicates clearly the extent to which reasonably adequate and relevant psychological knowledge is available to the teacher. The student will want to assess this analysis again after he has addressed himself to the field of learning in greater detail. It is offered at this point largely for its general introductory value.



No one will dispute the statement that one of the fundamental bases of curriculum construction should be a knowledge of how individuals learn. But many confusions and cleavages exist among educators with respect to the nature of the learning process and how it specifically affects school curriculums. J. Paul Leonard in his recent book on the secondary-school curriculum apparently feels that psychology is partially responsible for the situation. He says: "Without doubt much of the great confusion in education today is due to the even greater confusion in psychology. We need a more

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acceptable and convincing explanation of human learning and behavior." ¹

It is easy to understand such a feeling on the part of a curriculum builder. Psychology has never presented in any one place a complete, unified, coherent, and universally agreed upon account of the nature of learning. The science of psychology has not yet reached the stage of maturity which would make such a pronouncement possible. Despite this fact, much is known about learning, and a number of valid principles of great importance to curriculum builders have been established as the result of the efforts of psychological workers.

The purpose of the present paper is to set forth some of the concepts and findings from the field of learning theory which seem to have direct implications for curriculum development. This material will be presented under the following headings: (1) readiness for learning, (2) motivation and learning, (3) organization in learning, and (4) transfer of training.

READINESS FOR LEARNING

Numerous studies ² have shown that a sufficient stage of physical maturation is necessary before effective learning is possible. Equally important for learning is an adequate mental and educational readiness.³ First-grade teachers are usually aware of the concept of 'reading readiness' and understand that until a child has reached a mental age of approximately six years, and has developed in certain other important ways he cannot profit from typical types of first-grade reading instruction. But teachers in the upper grades and high school, and curriculum builders in general all too often

¹ J. Paul Leonard, *Developing the Secondary-school Curriculum*, New York: Rinehart and Co., 1946, p. 84.

² Hilgard, Josephine R. "Learning and Maturation in Preschool Children," *Journal of Genetic Psychology*, Vol. 41, 1932, pp. 36-56.

McGraw, M. B. "Neural Maturation as Exemplified in Achievement of Bladder Control," *Journal of Pediatrics*, Vol. 16, 1940, pp. 580-590.

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³ Washburne, Carleton, in *Child Development and the Curriculum*, Thirty-Eighth Yearbook of the National Society for the Study of Education, Part I. 1939, pp. 299-324.

Kai Jensen, *Ibid.*, pp. 325-360.

fail to recognize that readiness for learning is a prerequisite at all levels. A seventh-grade child who reads at the third-grade level is not ready to tackle seventh-grade reading materials. The child who has not as yet mastered the essentials of arithmetic is not ready for algebra. In building a defensible curriculum it is of utmost importance that for each grade or age group activities and materials be provided which will fit a great range of maturity levels. Courses of study which provide a given text for a given grade or a given set of exercises which all students must do, violate the principle of readiness for learning which is here being discussed.

Investigators who have tried to find the right grade placement for such topics as long division or improper fractions have really missed the point so far as maturation and learning are concerned. Regardless of the grade at which such a topic is placed in the elementary school, there will be some children who are so immature in terms of experience backgrounds that the process will be too difficult for them and perhaps others so advanced in their educational development that the topic will be of no interest or concern to them.

Any type of curricular arrangement which is to be successful must provide experiences which begin where the child is. Any other plan not only eventuates in ineffective learning but inevitably produces frustration which may lead to behavior disorders.⁴

MOTIVATION AND LEARNING

Both Dashiell⁵ and McConnell⁶ have clearly shown that all major schools of psychology hold that the organism must be motivated to learn. Motivation has sometimes been termed the *sine qua non* of learning. Certain superficial types of learning have been produced when the organism is not fully ready from a maturational standpoint, but without some form of motivation there will be no response on the part of the organism and hence no learning whatsoever.

⁴ See E. K. Wickman, *Children's Behavior and Teachers' Attitudes*, New York: The Commonwealth Fund, 1928, p. 151.

⁵ J. F. Dashiell, "A Survey and Synthesis of Learning Theories," *Psychological Bulletin*, Vol. 32, 1935, pp. 261-275.

⁶ T. R. McConnell, "Reconciliation of Learning Theories," in *The Psychology of Learning*, Forty-First Yearbook of the National Society for the Study of Education, Part II, 1942, pp. 262-266.

Careful investigations by Mowrer,⁷ Hull,⁸ and others have suggested that all learning is contingent upon need reduction. The organism must have some need, drive, or goal set or there will be no learning. Every individual possesses a few basic drives or wishes that are constantly demanding satisfaction. Besides the physical needs, there are the personality or social needs. Thomas⁹ has suggested that there are four fundamental drives of this latter type—the desire for recognition, security, response, and new experience. In addition to these more or less universal needs or drives, every individual develops his own personal needs and interests. These are undoubtedly based upon and related to the more elementary tissue needs of the body, but are so different from them that the connection is difficult to trace. Allport¹⁰ in his discussion of the functional autonomy of motives has clearly shown that an endless variety of human wants can be developed.

The needs, wants, interests, and motives of children should be identified, and learning activities which take these into account should be provided by the school. The effective curriculum is one which is flexible enough to provide experiences which relate to the individual goals of children. Such an arrangement makes for effective learning and, at the same time, makes possible the development of new interests. The individual who attempts an activity because he believes it will help him reach one of his goals, not only learns the activity but in addition develops a liking for the activity.

ORGANIZATION IN LEARNING AND THE CURRICULUM

A tremendous body of experimental evidence can be marshalled to support the hypothesis that learning proceeds much more rapidly

⁷ O. H. Mowrer, "Motivation and Learning in Relation to the National Emergency," *Psychological Bulletin*, Vol. 38, 1941, pp. 421-431.

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⁸ C. L. Hull, *Principles of Behavior*, New York: D. Appleton-Century Co., 1943.

⁹ W. I. Thomas, *The Unadjusted Girl*, Boston: Little, Brown and Co., 1923.

¹⁰ G. W. Allport, *Personality: A Psychological Interpretation*, New York: Henry Holt and Co., 1937, p. 190-212.

and is retained much longer when that which is learned possesses meaning, organization, and structure.¹¹ Too often pupils in our schools are asked to learn isolated sets of facts and information which are either unrelated to significant problems facing the learner or appear to him to be unrelated. Under these conditions it is not surprising that forgetting takes place on a vast scale. In a study by Brooks and Bassett,¹² pupils in American history forgot within sixteen months' time approximately one-third of the facts they knew at the close of the semester. In a similar study conducted by Layton,¹³ it was found that pupils in elementary algebra classes forgot, within a period of one year, two-thirds of the material they had known at the end of the course.

No such deterioration or drop in retention seems to occur, however, in those cases where the learner engages in activities which are organized in terms of his purposes and where his objective is to solve problems rather than to learn facts. Word and Davis¹⁴ conclude from their significant study that "ability to apply principles, to explain phenomena, problem-solving procedures, and attitudes are retained over a long period with only slight loss."

In view of what we know about organization in learning and retention, it would appear that curriculum builders should design courses of study which make it possible for children to work on problems, projects, and units which possess a high degree of internal organization. Much has been written recently about the core curriculum. One of its greatest strengths is probably the fact that it cuts across subject-matter boundaries and draws upon materials from all fields for the solution of problems. In the selection of problems for the core curriculum, however, the greatest care must be taken to in-

¹¹ E. L. Thorndike, *Human Learning*. New York: Century Company, 1931. J. P. Guilford, "The Role of Form in Learning," *Journal of Experimental Psychology*, Vol. 10, 1927, pp. 415-423. G. Katona, *Organizing and Memorizing*, New York: Columbia University Press, 1910. E. B. Newman, "Forgetting of Meaningful Material During Sleep and Waking," *American Journal of Psychology*, Vol. 52, 1939, pp. 65-71.

¹² Fowler D. Brooks and S. J. Bassett, "The Retention of American History in the Junior High School," *Journal of Educational Research*, Vol. 18, October, 1928, p. 200.

¹³ E. T. Layton, "The Persistence of Learning in Elementary Algebra," *Journal of Educational Psychology*, Vol. 23, January 1932, p. 52.

¹⁴ A. H. Word and Robert A. Davis, "Individual Differences in Retention of General Science Subject-matter in the Case of Three Measurable Teaching Objectives," *Journal of Experimental Education*, Vol. 7, September, 1938, p. 30.

sure that a sufficient variety of problems are included to meet the differing maturity levels and interest patterns of individual children.

TRANSFER OF TRAINING AND THE CURRICULUM

If the pupil possesses the necessary maturation and experience backgrounds for learning, is motivated, and if the material is properly organized, he will learn something. That something might be Latin, Sanscrit, or tiger-catching. According to the theory of formal discipline, anyone of these subjects might possibly sharpen the individual's mind and hence qualify for inclusion in the curriculum.

Scientific studies of transfer of training,¹⁵ however, have repudiated the idea that the mind is composed of faculties which can be sharpened by almost any kind of abrasive material and hence made highly effective in dealing with all types of life's problems.

Thorndike's¹⁶ theory of identical elements would seem to make it clear that the school curriculum should contain activities and problems which are very similar to those which the individual will encounter in life. Judd's¹⁷ theory of transfer by generalization would likewise seem to support this same conclusion. What pupils learn to do in school is what they will be able to transfer to out-of-school situations.¹⁸ The pupil who learns in the Latin class to say *hic, haec, hoc, huius, huius, huius* should be able to say this after his school days are over provided he has not forgotten it and has any occasion to do so. The pupil who learns to adjust a car carburetor in the school shop should be able to adjust the same or similar type of carburetor after he graduates. The pupil who develops a clear understanding of some principle in school should be able to apply

¹⁵ William James, *Principles of Psychology*, Vol. 1, New York: Henry Holt and Co., 1890, pp. 666-668. E. L. Thorndike, "Mental Discipline in High-school Studies," *Journal of Educational Psychology*, Vol. 15, 1924, pp. 1-22, 83-98.

¹⁶ E. L. Thorndike, *Educational Psychology*, Vol. II, *The Psychology of Learning*, New York: Teachers College, Columbia University, 1913, pp. 358-359.

¹⁷ C. H. Judd, *Educational Psychology*, Boston: Houghton Mifflin Co., 1939, p. 514.

¹⁸ See E. R. Guthrie, "Conditioning: A Theory of Learning in Terms of Stimulus, Response, and Association," Forty-first Yearbook of the National Society for the Study of Education, Part II, *The Psychology of Learning*, 1942, pp. 24-26.

this principle in life if a situation is ever found where the principle applies.

All that we know about transfer of training seems to indicate that those who would establish curriculums should have clearly in mind what it is they want children to learn. Only those materials, activities and problems should be selected which are directly related to these objectives.

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SUMMARY

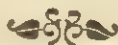
Principles from the field of learning theory which have a significant relationship to curriculum construction have been reviewed. It has been emphasized that the effective curriculum is one which: (1) makes provision for varying maturity and experience levels of pupils, (2) gears learning activities to the needs and goals of pupils, (3) provides projects, problems and units of experience which possess meaning and structure for the pupil, and (4) carefully selects and appraises projected pupil activities in terms of their transfer value to life's situations. The question might be raised as to whether a curriculum can do all four of these things at once. I believe the answer is--yes. The highly enriched and flexible curriculum will provide an almost limitless array of possible activities and learning experiences within certain broad areas. It should then be possible to select for a given pupil only those activities which satisfy these four criteria.

ERNEST R. HILGARD

The Relation of Schools of Psychology to Educational Practices

What should the teacher do in view of the fact that there are several competing theories or "schools" of psychology? Some jump to the conclusion that psychology can be of little use to education until the psychologists put their own house in order. Some select one of the contending points of view and attempt to shape their education thinking in accordance with it. Others feel that education must develop its own psychology.

Dean Ernest R. Hilgard, who has been a competent and interested observer of this problem, offers and defends another course of action in this article, written almost two decades ago. The view he held at that time is widely shared among contemporary educators and psychologists. The student will want to consider carefully its implications for the role of the teacher in the development of educational theory.



The plurality of schools of psychology, leading to books entitled *Psychologies of 1925*, *Psychologies of 1930*, *Seven Schools of Psychology*, reflects seriously upon the scientific status of psychology. Are psychologists peculiarly competitive, so that a psychologist who wishes to succeed must establish a school of his own? Are the verified facts so crudely organized that he is free to treat them according to personal whimsy? Such indeed must be the questions raised by one

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coming fresh upon the quarrels of the psychologists. This internecine warfare is particularly damaging to psychology's prestige in the education profession, where, historically, its prestige has been the highest. Education needs psychology, and if psychologists continue to be so fickle about their science, education may have to build a psychology of its own.

RELATION OF PSYCHOLOGY TO EDUCATIONAL PRACTICES

Psychology has made important differences in educational practices in the past. Three examples may serve as a basis for examining the nature of psychology's contributions.

The Application of Intelligence Tests

As a first illustration, consider the role which the intelligence test movement has played. More than any other instrument, the intelligence test has directed attention forcibly to the fact of individual differences, and to the necessity of doing something about them. This led to ability grouping, as one type of administrative device for coping with the situation. Whether or not this was successful, or its consequences desirable, there is no doubt that it was the intelligence test which brought about the regrouping of students. Another consequence of the intelligence test was the interest in the growth of mental abilities, now spoken of as maturation, so that, for example, the placement of activities such as the beginning of reading, should correspond with properly developed abilities.

The intelligence test movement is not the property of any one school. There are many controversies within it, some of which are flaring up again, partly as a result of the unorthodox findings at Iowa. But the studies at Chicago, Stanford, Iowa, and elsewhere are not to be classified as behavioristic, stimulus-response, or Gestalt studies. They are straightforward investigations with accepted methods of scientific logic, to be criticized in terms of the adequacy of the controls, not in terms of the general psychological theory behind them.

Mental Hygiene

As a second illustration of psychology's contribution to education may be mentioned the mental hygiene movement, with its emphasis on developmental psychology, and particularly upon the role of emotion. Many psychologists contributed to this—Stanley Hall, Watson, Burnham, and, indirectly through them, Freud. Probably no single psychological experiment has had pedagogical significance equal to that of the emotional conditioning of the boy Albert's fear of the rat. This is not a very convincing experiment, scientifically, but its lesson was so clear that it has served as a sort of Aesop's fable to instruct the teacher to guard against instilling bad attitudes in the learner, to watch for the emotional consequences as well as for the achievement score. The present emphasis on the continuity of personality growth, on the whole child, comes largely from the mental hygiene movement.

Mental hygiene, like the intelligence test, does not belong to one of the controversial schools of psychology. If any school has a right to claim it, that right would belong to psychoanalysis, yet of all psychologists studied in courses in educational psychology, Freud is probably the most neglected. Watson and the behaviorists were very important in introducing a modified Freudian point of view. This systematic behavioral interpretation of Freud continues at present, as in the recent volume on frustration, published at Yale University.¹ But for the most part the movement has been independent of theories at a high level of generality: it has grown out of experience in social service case work, studies of childhood and adolescence, the practical experience of school counselors. There is little need to try to define the school of psychology responsible for the conceptions of integrated personality, or the whole child, current today. It is sometimes supposed that the emphasis has come as part of the Gestalt reaction against the atomism of the behaviorist. This is historically inaccurate; in fact, the expressions "organism as a whole" and "integrated personality" can be found in the preface of *Psychology from the Standpoint of a Behaviorist*, written by the archbehaviorist, John B. Watson, twenty years ago.² Such concep-

¹ J. Dollard and Others, *Frustration and Aggression*. New Haven, Connecticut: Yale University Press, 1939.

² John B. Watson, *Psychology from the Standpoint of a Behaviorist*. Philadelphia: J. B. Lippincott Co., 1919.

tions have long been part of the most influential neuropsychiatric doctrine in this country, the psychobiology of Adolf Meyer.

The Reaction Against Formal Discipline

Perhaps the most significant educational reform of this century has been the rejection of the concept of formal discipline, with the consequent enrichment of the curriculum with activities and experiences selected not primarily because they train the mind, but for other reasons, often because of their practical importance in everyday life. This third illustration of a change in education brought about by psychology was paralleled by a rejection of the so-called faculty psychology in favor of the stimulus-response psychology of which Thorndike has been the most prominent exponent. Had the experiments of Thorndike, begun with Woodworth in 1901, turned out differently, the course of educational practices might well have changed. That is, if conventional subject matters like Latin and mathematics had been shown to be superior in their training potentialities to other subject matters, the entrenched groups supporting these subjects might have successfully stemmed the tide in favor of new materials. The Thorndike doctrine, reducing to the principle that we learn only the particular things which we practice, had important effects on the schools. It had the distinctly beneficial effect of encouraging significant and meaningful activities. It had the unfortunate by-product of emphasizing the separateness of activities, since only distinct bonds were supposed to be learned.

This third illustration appears to belie the conclusions from the previous illustrations, that the educational advance was made independent of a particular school of psychology. The reaction against formal discipline appears to be very intimately tied up with Thorndike's brand of psychological thought.

Again, this conclusion is historically inaccurate. The experiments of Thorndike did not create the movement against formal discipline; they merely provided some scientific support for the movement, which was well under way before Thorndike. Consider the following statement of educational policy:

The natural bent and peculiar quality of every boy's mind should be sacredly regarded in his education; the division of mental labor, which is essential in civilized communities in order that knowledge

may grow and society improve, demands this regard to the peculiar constitution of each mind, as much as does the happiness of the individual most nearly concerned.³

This recognition of the fact of individual differences, of the importance of education to society, of the desirability of the individual happiness of the learner, was proposed in 1869 by Charles W. Eliot, prior to his election as president of Harvard. Within the next few years the elective system was established at Harvard, and its repercussions on the educational system were undoubtedly more important in displacing formal discipline than the few experiments on transfer of training which were made thirty years later, and certainly more important than the acceptance of Thorndike's particular theoretical formulations.

The conclusion appears to be justified that many, if not most, of the significant contributions of psychology to educational practice do not depend upon the ultimate validity of one or another of the controversial schools.

INFLUENCE OF "SCHOOLS" OF PSYCHOLOGY

Educators have not acted upon this conclusion. They have not, as a rule, been satisfied to adapt the contributions from psychology resting upon verified experiments to their situations, but they have sought to root educational practices exclusively in one or another of the currently popular schools of psychology. This tendency to adhere to a partisan point of view has led to no end of embarrassment when the accepted school turned out to be no longer acceptable. A discarded psychological fad leaves textbooks outmoded, justifications for accepted practices untenable, and leads to frustration on the part of the teacher whose psychology is secondhand. Consider some of the high-sounding words from various psychologies, each at one time or another serving as a keynote for educational programs. First, *apperception*, which takes us so far back that the five steps are now recalled only for examinations in the history of education. But this was an orthodox psychology in schools of education, and there

³ Charles W. Eliot, "The New Education," *Atlantic Monthly*, XXIII (February, 1869), 218. This quotation is reproduced by Henry James in his book: *Charles W. Eliot*. Boston: Houghton Mifflin Co., 1930, Vol. I, p. 169.

must have been those who felt their teaching completely adrift when the fundamental axioms were attacked. Then for a time there were the instincts. These gave a certain security, for in the original nature of the child there were certain things we could count on. These soon became taboo. Then came the hey-day of the *stimulus-response* bonds, and Thorndike's laws of readiness, exercise, and effect. The most widely used textbook of the early '20's suggested that S-R be hung as a motto over all psychology classrooms. Then the *conditioned reflex* came along to outmode Thorndike, and all that the teachers had to do was to go about conditioning the pupils. This in turn was replaced by Gestalt or organismic psychology, with *insight* as its chief catchword. In the meantime we had had some flirting with *complexes*, *defense mechanisms*, and the like, but these remained somewhat on the outskirts of the study.

A listing of such technical terms shows how spurious the service of psychology to education may become if that service is accepted uncritically. Education is peculiarly susceptible to new ways of stating old truths, perhaps because of the prevalence of teachers institutes, with their demands for new pedagogical advice. There is no harm in fresh approaches, and new ways of saying things often have a wholesome influence. But there is a danger in saying that the old must be discarded in favor of the new, or to give the false impression of discontinuities in scientific progress all the while that we are stressing continuity in individual growth. It is a mistake to suppose that any new school of psychology has had a very profound immediate influence on educational practices, even though it may change dramatically the educational vocabulary. In order to give point to these remarks, the claims now being made in the name of Gestalt or organismic psychology may be examined.

Gestalt psychology has made many important contributions to psychological experimentation and to psychological theory. About this there is no doubt. The question to be discussed is, rather, to what extent do current progressive developments in education stem from the changes in psychological outlook brought about by Gestalt psychology?

There are a number of claims. Among them are: first, the substitution of a conception of the whole for earlier emphases on parts; second, a tendency to replace repetitive drill with an effort to secure understanding or insight; third, the focusing of interest on matura-

tion, hence on individual development, as against static capacities; fourth, the conception of the individual as a purposing, striving personality, rather than as a passive learner. The last includes the importance of intrinsic as against extrinsic factors in motivation. There are others, but these are representative. In respect to the educational advances subsumed under these claims, there are three questions which may be asked. First, does Gestalt psychology give a coherent treatment of these desirable changes in educational practice? Second, does Gestalt have some exclusive claim to the origination of these proposals? Third, have the investigations by which these proposals may become of service to the teacher been made under the influence of Gestalt psychology?

In answer to the first question, it may be admitted that a progressive educational philosophy may be constructed using the language of Gestalt psychology. This has indeed been the primary appeal of Gestalt psychology to the educational theorist. There is one reservation, however, arising out of the fact that Gestalt psychology is not itself a single system, and all Gestalt psychologists do not agree. Hence, an educational theory does not flow automatically from Gestalt theory.

The second question, regarding the origination of these practices as a result of Gestalt psychology, must be answered in the negative. The value of repetitive drill versus that of understanding is an old problem; the relation of the part activity to the whole was clearly envisaged in the early Dewey school; the intelligence test movement was as concerned with maturation as any Gestalt psychologist has ever been, and the numerous experiments on animal and human development have been almost entirely independent of Gestalt influence. Finally, the question of purposing and striving has had a long history in psychology. McDougall gave the name *hormic psychology* to his system because purpose was the central concept; Woodworth, attacking McDougall in 1918, developed the dynamic psychology of drives and tensions in essentially the form currently used by a committee of the Progressive Education Association.⁴ Whether or not Gestalt psychology has illuminated these

⁴ *Science in General Education*. Report of the Committee on the Function of Science in General Education, Commission on Secondary School Curriculum, Progressive Education Association. New York: D. Appleton-Century Co., 1939. The discussion of tensions is found on pages 17 and 19. While the quotations are from Bode and Dewey, they are harmonious with Woodworth's early discussions.

old problems, it is evident that there has been a continuous development into which Gestalt has fitted, rather than something originated by Gestalt psychology. As a matter of fact, Gestalt psychology has been weakest in the fields of learning and motivation, strongest in a field most neglected in current educational discussions, the field of sense-perception.

The third question, important to the teacher, is to what extent Gestalt psychology has influenced investigations which make the new principles useful to the teacher. In this respect, the record of Gestalt psychology is not a strong one. A theory of insight does not tell how to teach typing most economically; a theory of maturation does not give the vocabulary to use in fourth-grade readers. Those who have contributed most to these essential problems are not identified strongly with any particular school. Maturation questions, such as those involved in reading readiness, have not waited for Gestalt psychology, but have been studied for years. The word-counts by which readers are arranged in a sequence of difficulty have not been dictated by Gestalt psychology; in fact, in this field, Thorndike's name is as prominent as any. Motivational problems in school are being faced as problems of mental hygiene; the concept of a normal, happy child, free of disrupting conflicts, has not been furnished by Gestalt psychology. While some illuminating studies on frustration are now coming from the laboratory of Lewin, whose psychology is an offshoot from Gestalt, he would be the first to admit that the conceptual framework of these studies owes its dynamic inspiration more to Freud than to orthodox Gestalt psychology.

The foregoing discussion is not to be interpreted as a criticism of Gestalt psychology. The desire is only to place educational developments in perspective. The Gestalt psychologists themselves (Wertheimer, Kohler, Koffka) have not made exaggerated claims respecting the educational contributions of their theories. There is an excessive willingness on the part of educators to attribute to this one school of psychology, currently popular, all of the good that is found in progressive educational practices, even though these practices have a long and respectable history independent of Gestalt. It is a different thing to find these practices coherent with some form of Gestalt psychology, and to announce them as a product of Gestalt psychology, as though they are somehow guaranteed by Gestalt psychology. They are guaranteed now, as always, by the test of ex-

perience, as measured against our current standards of value.

Gestalt psychology, as such, will soon lose its identity. This has been the history of all previous movements which were prematurely crystallized. The signs of assimilation and of disintegration are already apparent in the changes introduced by Wheeler and Perkins (particularly their organismic laws which no other Gestalt psychologist accepts); the new names attached by Lewin to his interesting developments (topological and vector psychology); compromises with other psychologies, as by Tolman (purposive behaviorism). One of these days, students of education brought up on Gestalt psychology will have the sense of bewilderment that their older colleagues feel who were brought up on behaviorism. They will be saying to themselves: "How can this good and perfect thing have failed so utterly, and where now can I turn to find support for my educational practices?"

PSYCHOLOGY AS A SPECIFIC AID IN EDUCATIONAL PRACTICE

Here, then, is a paradox. Educational practices are obviously modified by developments within psychology. Yet we can not, as educators, permit ourselves to give allegiance to one of the current schools, lest presently we find our moorings adrift. What can the educator do about psychology?

One provisional answer can be given: know psychology, and don't be too concerned about psychologies. Psychology is a developing science with many exciting changes, but few revolutionary ones. Beware of psychological issues which are so general that their implication for education is not clear; if possible, force arguments back to specific answers at the level of educational practice. One can argue until he is blue in the face over the question, Which is more important, nature or nurture? He will not find an answer. You can get an answer to the question, How can we find out whether children handicapped in reading are behind the others because of low intelligence or because of faulty training? Not only will you get an answer, but you can do something about it. You may have a heated discussion over the real basis of vocabulary development, but, con-

fronted with real children, you can test their vocabularies and choose reading material which is comprehensible as well as interesting, and you may know what words the children comprehend well enough to learn to spell. When psychology is confronted with genuine problems—important, but answerable—it is found to be less fragile and flimsy than when answers are sought to more general questions in an atmosphere of debate.

To indicate that the service of psychology comes in specific aids to educational practice rather than by way of general laws and principles is in part a confession of the present state of science, but it is also a recognition of the legitimate role of science in technology. If psychology's general theories were in better order, there would be more educational practices flowing from its laws of learning, motivation, and the like. But even in an advanced science like physics, many of its applications are specific, and do not flow from its general laws. Consider, for example, the use made of physics by an engineer making an industrial application of a new alloy. Someone had to do experiments with that alloy itself, in order to find its resistance to the flow of electricity, its tensile strength, its resistance to corrosion, its coefficient of expansion, and so on. Many such data are recorded in handbooks which engineers use. The point is that these are specific facts about a specific alloy, and they do not derive from Newton or Einstein, except very remotely. Many school problems confronting the educator are as specific as the alloy problem confronting the engineer; here are children with given vocabularies, perhaps a proportion of them speaking foreign languages; here are the things children like to play with in 1939, regardless of what they played with in 1900; here are the economic and social resources of our community. These problems have to be studied specifically for what they are, just as the engineer has to test his alloy specifically. This would remain true, even if psychology were in as completely systematized a state as physics.

The implication of this analogy with the engineer is that the task of educational psychology would remain, even though the task of general psychology were completed. There is a permanent field for the educational psychologist. This raises the question of the relation of educational psychology to general experimental psychology.

One conception of applied psychology is that there is only one

science of psychology, which can be applied only after it is learned. It is superficial to speak of an educational psychology, a legal psychology, a medical psychology. There is only psychology, which may be applied to education, to law, to medicine. While at first this appears to be logical, any student of the history of science will detect the fallacious nature of this conception, for advances in applied science do not wait for advances in pure science. Metallurgy does not wait for the chemistry of metals; the animal breeder does not wait for the science of genetics. The inventor of the steam engine was not an authority on thermodynamics. There is a constant interchange, applied sciences setting problems for pure science, pure science finding applications. Technology never does wait for pure science any more than a physician refuses to treat a disease he does not understand.

The necessity for solving urgent practical problems gives some independence to the educational psychologist, but it would be a grave mistake to foster the breach between educational psychology and general experimental psychology which has all too often been allowed to grow, particularly in our institutions of higher learning. One person may assume the roles of both general and educational psychologist, or educator and general psychologist may cooperate. It is the independence of a field of educational psychology which is asserted. One thing educational psychology is not: it is not simply an attempt to understand the findings of general experimental psychology in order to give educational advice, pinning the findings of psychology like so many labels on the practices in the schools. Any attempt to do this leads to the faulty analogizing habit, all too prevalent in psychology. Rather, educational psychology must understand general experimental psychology for the purposes of verifying its principles in school practice, and of implementing the principles in a way useful to the teacher.⁵ The practical problems of the schools must be solved in accordance with psychological generalizations tested at a level close to that at which the applications are to be made. Motivational experiments with animals can not be used by

⁵ The opportunities for experimentation in the schools are rich enough that school practices may be used as the locus of discovery of general psychological principles as well as the locus of verification. This is not the special province of the educational psychologist however, though it is an important service he can render to psychology.

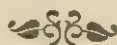
analogy to direct practices with school children; rather, from the animal experiments we may learn important things to look for and to try out with school children. From retroactive inhibition experiments with nonsense syllables one may become sensitive to possible interferences between learned activities, but if one desires to know how much the bilingual child is handicapped due to the interference of two language systems, one must study the child who speaks two languages. It is the role of the educational psychologist to experiment in the schools.

This emphasis upon practical procedures may appear to subordinate the role of psychology in education, particularly in relation to broader aspects of educational policy. This does not follow. As a minimum, it may be stated without fear of serious contradiction that psychology will be an important corrective to a faulty educational philosophy, and no educational philosophy will be acceptable which flies in the face of established psychological facts or principles. In the formulation of a satisfactory educational philosophy there are social and ethical considerations which go beyond psychology. The democratic ideal, for example, receives some support from psychology, but only indirectly. Psychological studies can perhaps demonstrate that democratic atmospheres yield the kinds of personalities we like. Psychology alone can not assure us that we ought to like that kind of personality; this is a cultural and ethical problem. If psychology is to have an important place in educational philosophy, it is all the more important that there go on a continuous process of criticism and verification by trained psychologists studying children in the schools. This is the need: the demand is not for disciples of new and controversial psychological systems.

ROBERT A. DAVIS

Applicability of Applications of Psychology with Particular Reference to Schoolroom Learning¹

The following article and the preceding one were prepared to serve somewhat different purposes. Both, however, relate⁴ to the same basic problem and represent different views regarding its resolution. Although Professor Robert A. Davis agrees with Dean Ernest R. Hilgard's insistence that the teacher must be cautious in the educational application of psychological findings, his analysis of psychological research activities and his conception of the nature of the educative process lead him to a different conclusion regarding the definition of educational psychology. His view, too, is shared by many and deserves careful study.



Educational psychology has been generally regarded as an applied field, *applied* in the sense that it has depended for its data upon aspects of general theoretical psychology believed to be applicable to the problems of education. The aims and methods of educational psychology have consequently reflected the content and methods of psychology, the educational psychologist being expected to glean any material from the psychological field that may be adapted to the needs and interests of educators. For his material on

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schoolroom learning, the educational psychologist has drawn principally upon two types of psychological research: (1) research on animals, particularly rats; and (2) research on human subjects (usually adults) in the psychological laboratory. Justification for the use of the results of such research, therefore, rests upon the validity of their application to schoolroom situations.

The history of educational psychology in the United States is intimately associated with animal experimentation. The laws of learning based on Thorndike's now classical work, *Animal Intelligence*,² with some modification still constitute the generally accepted principles of learning in school situations. Indeed it is the exceptional textbook in educational psychology that does not present adaptations of these laws in dealing with theories of learning. The applicability of such laws to human learning in general and to schoolroom learning in particular has always been questioned; but, in the absence of theories of learning developed in school settings, the educational psychologist has felt obliged to adapt them for educational use. There would be little advantage for our purpose to enter into a controversial discussion of the extent to which animals and human beings react similarly or differently in learning situations although abundant material could be brought to bear upon this subject. More fundamental to our purpose is the question of the contribution, if any, that animal experimentation can make and has made to the technique and theory of schoolroom learning.

The psychologist in studying animals is able to devise techniques for studying various factors involved in mastering problem situations. He can also set up various types of obstacle, reactions to which enable him to formulate principles governing behavior in *dynamic* learning situations. And it is in studying the *dynamics* of the learning situation that animals have been most useful as subjects. It is doubtful whether principles so derived will operate in the same way or with the same degree of consistency in the case of human subjects. It appears certain, however, that the results of animal experimentation may have some theoretical as well as practical value in *predicting* behavior of human beings when confronted with similar situations. But what is more important, the psychologist through experimentation with animals is able to devise and try out numerous techniques, some of which may be adapted to experimentation on the human level. The psychologist conceives of his

work with animals primarily as a means to the arrangement of more elaborate psychological situations in which human subjects may be expected to demonstrate greater insight and intelligence in learning.

The study of animals has not only resulted in the development of techniques of investigation but has also been a means of supplying most of the theories generally presented in theoretical psychology. Explanatory principles based on animal experimentation have constituted also the essential material for the theoretical aspects of learning in educational psychology textbooks. And, in several instances, authors have used as a frame of reference a certain school or theory of learning, based on animal experimentation, for all subject matter of educational psychology. But it is the educational psychologist and the educator who have blindly applied such theories to school situations. The psychologist, because he regards experimentation with animals as a science, hesitates to make applications to any situation outside psychology; and in the exploratory stages of his work, even outside the experimental situation in which the results have been obtained. On the contrary, he believes that the principal contribution of animal experimentation lies in providing techniques and theories which may be tried out with modification in more complex human situations. It is through such exploratory foundational work that animal experimentation makes an indirect contribution to the psychology of schoolroom learning.

Results obtained from a study of human subjects in the psychological laboratory have provided a basis for most of the practical principles of school learning in educational psychology textbooks. Not only has the educational psychologist emphasized practice curves resulting from a study of constant motor or verbal tasks for generalizing about the rate and accuracy of classroom learning; but has drawn even more heavily upon economical principles derived by laboratory methods. Most generalizations regarding classroom learning have been formulated on the basis of findings of the psychologist in a laboratory study of the problems associated with acquisition, retention, and transfer of training.

In order to make deductions as practicable as possible, the educational psychologist selects laboratory experiments considered most applicable to schoolroom situations. He must rely for this purpose, however, upon experiments which show either progress in acquiring motor skills or improvement in memorizing meaningless

or semi-meaningful materials. Because of the limited number of investigations in which children have been used as subjects, he has been obliged to base generalizations upon learning experiments in which the subjects have been adults. It has been generally observed that these limitations exist so far as helpfulness to educational psychology is concerned. It has not been generally recognized, however, that even though laboratory materials be meaningful, and the subjects be school children of varying degrees of maturity, generalizations on schoolroom learning are of doubtful validity if limited to analysis of a learner's efficiency in mastering a constant motor or verbal task. On the contrary, most school situations require the use of a different technique or at least a modification of that used in the psychological laboratory.

Acquisition in school subjects represents a learning situation which is cumulative rather than constant and which, therefore, should be studied by a technique different from that used in studying a constant motor or verbal task. The assumption underlying the technique for investigating learning in a continuously changing situation is that acquisition represents progress within large units of learning material, where continual reorganization of material may be prerequisite to advancement. Instead of a constant learning task, the pupil is continually learning in school new aspects of subject matter and correlating them with the old. Although curves based upon acquisition in school subjects may show fluctuations in performance, they tend to follow a more or less steady rise until the instructional period is completed. The principal value of laboratory techniques in studying schoolroom acquisition, therefore, lies in their adaptability for gauging improvability and potential rate of learning in *practice* situations.

When we turn more directly to the economical principles of learning as studied in the laboratory, the techniques and materials are equally inapplicable. Here, we find various applications by the educational psychologist made from laboratory experiments dealing with motivation, whole and part methods of learning, distributed versus concentrated practice, length of materials and effort required to learn, etc. The validity of results of a study of all such problems like those of mastering constant tasks rests, of course, upon the applicability of the techniques, materials, and measures to schoolroom situations.

The psychological laboratory, because of its rigid control and accuracy, has set a standard worthy of emulation by anyone interested in the scientific study of schoolroom learning. Laboratory experimentation is characterized by specific practice upon functions to be improved, definite time limits, control of irrelevant influences, awareness of success and error, and maximum motivation. Under such conditions, improvement is always secured. The materials, methods, and measures of learning which contribute toward improvement in the laboratory are the very factors which restrict their applicability for schoolroom use. It is these characteristics of the psychological laboratory which prompted an educational psychologist recently to state: "The real objection to the laboratory is not to the laboratory as such but to what goes on here. . . ." ³

Fortunately, this question of the applicability of laboratory findings to schoolroom situations no longer remains in the realm of opinion. A substantial number of investigations ⁴ have already been conducted to determine the relationship between results obtained with human beings in laboratory situations and those obtained by the repetition as nearly as possible of the same experimental conditions in schoolroom situations. The net result of these studies is that the findings obtained in schoolroom situations differ significantly from those obtained in laboratory situations. It is recognized, of course, that exact duplication of laboratory conditions in the school is impossible, thus making incomparable any results obtained under the two kinds of experimental condition. This apparent fact should make educators skeptical of the applicability for practical classroom use of any results obtained from the psychological laboratory.

The discussion up to this point has been confined to the applicability of psychological research to schoolroom situations. There remains the more fundamental question of the validity of the theories and findings of psychology itself; for, regardless of any conclusions that may be made with respect to applicability of psychological research to school learning, one could scarcely expect to apply principles or findings which are imperfectly established in their own setting.

Research workers in psychology, like those in any comparatively new science, have found it necessary to discover, to explore, to analyze and identify problems—in brief, to pioneer. Common de-

fects⁵ found in the reports of psychological investigation, both in this country and Great Britain, when appraised on the basis of standard criteria, include: (1) lack of adequate preplanning; (2) failure to determine and report validity and reliability of instruments used in obtaining data; (3) inadequate time duration of studies; (4) faulty sampling, including insufficient numbers and lack of representativeness of subjects; (5) generalizations unwarranted by the data; (6) lack of confirmation of results by repetition of previous studies; (7) lack of standardization of research procedures, thus making difficult the repetition of studies for verification. The most evident trend and certainly one which bears directly upon the validity of psychological theories and findings is the tendency to explore numerous problems without repetition of studies for verification. Psychologists have traversed much territory, but have established only a few trails and virtually no highways. Instead of certainty there is now a wholesome criticism of facts and principles. This trend, though healthful in psychology, is not very helpful to the educational psychologist wishing to seize upon some theory or principle which may be put to immediate practical use.

This instability in psychological research makes any generalization for use in psychology or education of questionable validity. How general should a generalization be for its valid application? Does a generalization mean that a certain principle or theory works only under certain conditions and with certain types of subject? Does it mean that the principle works in 51 per cent of typical cases, 75 per cent, or some other per cent? Answers to these questions demand the establishment of criteria of applicability of generalizations. These questions deserve special treatment by the psychologist as well as by the educational psychologist.

One could, of course, maintain that since the results of every study are influenced by numerous conditioning factors it would be hazardous to make generalizations for wide use under any circumstances. Those accepting this point of view would argue in effect that every pupil in every learning situation should become the basis of a detailed case study.⁶ But the establishment of generalizations in the form of principles or theories is the dominant aim of experimental study and especially the goal of the theoretical psychologist. Formulating generalizations, or rather noting differences resulting from the operation of single variables, so long as they are

not the result of chance, constitutes the real motivation of the psychologist. His is the quest for constants, his is the task of formulating hypotheses which may lead to further experimentation, until results from a study of a number of specific problems, considered as integral parts of a larger experimental situation, provide a basis of formulating a theory. Generalization for the psychologist means the observation of any consistent variation in results as a consequence of variation in experimental factors, the assumption being that extraneous factors are being controlled. Generalization for him, then, means any trend, however slightly it may differ from that of another so long as it is experimentally and statistically consistent.

It is in the case of broad schools of learning that the techniques of the laboratory have especial significance. A viewpoint widely accepted in psychology during the greater part of this century has been that learning is predominantly mechanistic, that is, mechanized procedures are essential for describing and explaining learning. This viewpoint had its origin in results obtained with animals studied in trial and error situations. Psychologists quickly discovered that both animals and human beings if placed in trial and error situations exhibit many of the characteristics of sheer repetition. Also, because of the easily demonstrable effect of practice in the formation of habits, psychologists accounted for such habit formation on the basis of assumed neurological changes. Thus, improvement as a result of practice was readily associated with neurological traces within the nervous system. "Connections" were being formed which practice tended to strengthen. A closely related assumption which is implied in mechanistic theory is that behavior may be analyzed into a number of constituent elements in such a way that success in one habit may not be accompanied by equal success in another.

Mechanistic psychology constituted the accepted doctrine of American psychologists until about 1925 when they began to shift their emphasis to concepts such as *insight*, *purposiveness*, *interpretation of wholes*, essentials in an "organismic" school⁷ of learning. The acceptance of organismic psychology of learning resulted from, more than anything else perhaps, a difference in the method of studying learning in animal and human laboratories. When the situations in which animals and human beings were studied were of the trial and error type, learning was explained on the basis of

mechanistic principles. But when the type of learning task was modified so as to permit the exercise of greater insight and intelligence by the learner, theories embodying organismic and purposive concepts were proposed. Under conditions of one type of experimental situation a certain kind of learning response is discovered which lends support to a certain school or theory of learning; under another type of experimentation a different level of response is observed which lends support to another school or theory of learning. Furthermore, the theory which the experimentalist accepts determines his method of studying learning, and the results which he obtains in turn support his theory. It should be remembered that the organismic theory of learning was built up by those who recognized inherent limitations of trial and error methods; and in refuting mechanistic principles of learning, used learning situations which permitted greater opportunity for insight and reasoning on the part of the learner. Perhaps the multiplicity of theories proposed to explain learning ranging from the extreme mechanistic to the extreme organismic viewpoints is due in no small measure to the techniques of studying learning rather than to any divergent philosophic concepts of the nature of learning.⁸

The unfortunate circumstance with respect to the controversy in learning theory is not the controversy in psychology but the eagerness with which educators have applied such theory to education. Educators not only talk a great deal about the influence of psychology upon educational theory, but force psychological principles, regardless of their relevancy or validity, into educational theory. It is, therefore, more than accidental that some of the broad aspects of changing educational theory have reflected parallel movements in the field of psychology.⁹

But before organismic theory had scarcely become a part of the literature of psychology, modern educators had already begun to reshape their philosophy around the concepts of *whole child*, *total learning situations*, *integration of personality*, and *purposive learning*. Perhaps the most obvious of these modifications of educational theory was the abandonment by educators of mechanistic theory with its emphasis upon specificity of response and accuracy of learning, and the adoption of the slogan, *purposive learning situations*. The adoption of psychological theory is not new in education. At one period in education, the accepted psychological prin-

ciple was apperception; and more recently, behaviorism, conditioned reflexes, Gestalten. No sooner has a psychological theory with its specialized terminology been incorporated into educational writings than it has to be discarded for a still newer psychological theory with an entirely different terminology. It would be relatively easy to show that modern educators within recent years have been constantly alert for any new theory or concept in psychology to justify some innovation or vaguely conceived plan of education.

For the most part, this widespread adoption of psychological theory has taken place without the approval of the psychologist. On the contrary, the psychologist has tended to exercise a steadying influence upon the educator. He has been the first to call the attention of the educator to the fickleness and instability of psychological systems. Geldard,¹⁰ after reviewing and analyzing psychological laws of learning to render them useful to public school teachers of Virginia, concludes:

It is apparent from the consideration of the changing concepts found in the current experimental psychology of learning and the multiplicity of the interpretations of the most primitive facts of learning that educational practices will have to be guided for some time to come by rules of thumb, as they have been in the past . . . This is not to say that nothing of interest or importance has been done in the way of formulating generalities concerning the nature of a learning. Our happy plight at present is that we have at hand far more laws of learning than can possibly be true; all of them worthy of serious consideration deal with one or another degree of relevance with the broader sets of learning facts.

In view of the situation in psychology, what is the educational psychologist to do? It will be necessary for him to approach the problems of educational psychology in a different way. Instead of making adaptations of psychological materials and techniques for educational use, he should study the problems of educators and especially those of teachers as a basis of determining the needs and requirements of educational psychology. He must lay the foundation of educational psychology through a realistic study of educational problems, devise his own techniques or at least modify psychological techniques, and chart his own program of research.

Psychology and educational psychology differ fundamentally with respect to purposes and methods. The psychologist is interested

principally in the scientific analysis of potential abilities and capacities; whereas the educational psychologist is interested primarily in the means of their development. The one is interested in improvability; the other, in the broader aspects of training and accomplishment. Psychology has made a distinct contribution to education through its analysis of pupil potentialities and differences as revealed by means of various types of psychological test. It has also contributed directly to a knowledge of pupil growth and maturation during the school years. It has contributed very little of practical value, however, in the solution of the everyday problems of the classroom teacher.

The teacher, in his job of facilitating and directing learning, is directly concerned with the problems of formulating instructional objectives for subjects or courses, of organizing materials of learning, of constructing and using tests and other means of evaluation to determine the extent of progress toward the attainment of objectives, of analyzing and diagnosing learning difficulties; and in a host of problems relating to economy of learning, such as motivation, methods of learning, size of classes, frequency of recitations, and modes of presentation. These should be investigated in school settings in which the cooperation of the teacher is sought in planning and conducting studies, and, even more important, in appraising any results that may be obtained.

This does not mean that educational psychology should divorce itself entirely from psychology. The educational psychologist can profitably try out in schoolroom settings principles which have been established in the isolation of the laboratory. We have worshipped the simplicity of learning in the laboratory in the belief that accuracy would assure validity. There is abundant evidence that variables studied in combination (notably in statistical studies of prediction) may produce greater validity than in the operation of variables studied singly. In the larger social setting of the classroom, events do not occur in isolation or as the result of the operation of single variables. In the laboratory, however, we have tried to make them happen that way. The educational psychologist should consider the possibility of trying out experimentally under school conditions any psychological theories, hypotheses, or clues that hold promise of theoretical or practical application. Professional writings dealing with the psychology of school subjects are already replete

with adaptations of contemporary psychological theories as illustrated, for example, in arithmetic by the controversy, *drill theory versus meaning theory*. Testing the practical value of such adapted theories should not mean, however, that effort will be made to determine whether one's results are in accord with current psychological theory, but rather whether a particular theory facilitates schoolroom learning.¹¹

There is no reason, moreover, why the educational psychologist should not in due time develop his own theories of learning. He has the unique opportunity of testing theories of theoretical psychology, and also of formulating from his own data theories which may be further tested in the practical setting of the schoolroom laboratory. It was in response to the need for solving practical problems that the traditional sciences took form. Educational psychology, through a study of the practical problems of the classroom teacher, may in time attain a degree of intellectual respectability in its own right.

The hopeful view with respect to this problem of applicability of psychological theories and findings is the fact that there is a steadily growing body of studies being conducted in educational psychology laboratories, in experimental schools, and in typical school situations. These studies, however, have been in the nature of analysis, of exploration, of discovery, and have been almost as varied in techniques and results as the investigators who conduct them. The obvious result is that there are few topics on which knowledge is sufficiently sound to warrant valid application to schoolroom practice. The day of exploration has now passed; the need of repetition of promising studies is imperative. If verification be desirable, it follows that some degree of standardization of research procedures is necessary. Psychologists¹² have already considered the need of standardizing the materials, methods, and measures of laboratory learning. The term, *standardization*, is distasteful to the research worker wishing to exercise flexibility and originality in attacking problems. But what appears to be essential is that principal procedures be standardized merely as a point of departure from which techniques may vary in specific situations.

The necessity for some degree of standardization is recognized by anyone who reviews learning investigations for the purpose of indicating trends and formulating generalizations for practical use

by students and teachers. Periodic reviews and syntheses (if a synthesis be possible) of the available research on schoolroom learning would be useful to teachers and educational psychologists and would indicate the lines along which research could profitably be conducted in the future.

Finally, if educational psychology is to make any real difference in the thinking and teaching of teachers, the program of professional training should be a continuous one, wherein the educational psychologist and the teacher on the job work together in a discussion and solution of teaching and learning problems. Organization for this purpose, in some cases, has taken the form of a *learning conference* conducted for teachers on the job, the teachers presenting their own problems and practical suggestions for their solution and the educational psychologist contributing research trends and points of view. The workshop and other well known forms of organization serve essentially the same purpose, especially if effort is made to blend research and teaching experience.

This blending of research knowledge and teaching experience through learning conferences provides one of the most promising methods of putting educational psychology to work. In general, the educational psychologist knows little about the everyday happenings of the classroom; and the teacher knows little about the scientific study of learning and teaching. As a result of cooperative effort the teacher is stimulated to take a more critical attitude toward his own practices, and in some instances to conduct research in his own classroom.

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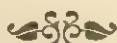
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Chapter Two

DEVELOPMENTAL ASPECTS OF BEHAVIOR



5. Learning and Maturation in Pre-School Children
Josephine R. Hilgard

6. Concepts of Growth: Their Significance for Teachers
Willard C. Olson and Byron O. Hughes

7. A Validation of Developmental and Adjustment Hypotheses
of Adolescence
Aileen Schoeppe and Robert J. Havighurst

8. Methods of Child-Rearing in Two Social Classes
*Eleanor E. Maccoby, Patricia K. Gibbs, and the Staff of the
Laboratory of Human Development, Harvard University*

9. The Fundamental Needs of the Child
Lawrence K. Frank

10. A Healthy Personality for Every Child
Midcentury White House Conference on Children and Youth

JOSEPHINE R. HILGARD

Learning and Maturation in Pre-School Children

Many changes in behavior occur in a regular, predictable sequence that is not influenced significantly by normal environmental variations. Such changes occur as the result of what is usually termed "maturation," and the concept is an important one for the teacher. The readiness of a pupil for learning is, in part, related to his stage of maturation. Educational plans that expect a child to learn skills which, maturationally, he is not "ready" to perform are, at best, inefficient.

This study, conducted by Dr. Josephine R. Hilgard in the Psychological Laboratories of Yale University, has twofold value for the student. First, its substance provides convincing demonstration of the relationship between motor-skill learning and maturation in preschool children. Its second and more general value lies in the fact that it serves as a competent illustration of one of the *methods* used in studying the relationship between the phenomena of learning and maturation.

The present study, for which a group of Merrill-Palmer nursery-school children were subjects, was undertaken in the hope that it might yield further information concerning the relative importance of maturation and practice in the development of motor skill in young children. For this purpose, it appeared that abilities which were just beginning to develop in the children offered the best op-

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portunity for investigation. Since previous studies had shown that the abilities of buttoning, cutting with scissors, and climbing a ladder appear in children between the ages of 24 and 36 months, these three skills were selected for study. A control group and a practice group were used in order to test the effects of maturation and general practice (control group) as against the effects of intensive special training (practice group) during a three-month period.

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RELATED STUDIES

It is generally recognized that the improvement of an ability with age is due both to the maturation of innate growth factors and to the cumulative effects of functional experience. To discover the rôle which each plays, and to estimate the degree of interdependency, is a problem which has been approached primarily from the field of animal behavior, and more recently from that of child behavior.

The classical experiments of Spalding¹⁵ and of Shepard and Breed¹⁴ on maturation in the flying of birds and the pecking of chicks are familiar. More recently, Carmichael⁸ has shown that drugged embryos of frogs and salamanders, remaining motionless during a period of growth, when denarcotized soon swam so well that there was difficulty in distinguishing them from the group which had been swimming five days. It appears that the rapid learning of the delayed group was possible because they were able to take advantage of a greater maturity.

In his careful investigations over a period of years, Coghill⁴ correlated the behavior of *Amblystoma* with the structural development of the nervous system. His results clearly indicated that behavior, which represents a progressive expansion of an integrated pattern, develops in a sequence of movements consistent with the order of development of the nervous system. Coghill concludes that the *form* of the behavior pattern is determined by laws of growth within the organism; the normal experience of the animal with reference to the outside world appears to have nothing specifically to do with it. On the other hand, in determining when, and to what extent, the potentiality of behavior shall be expressed, there is an

interaction between the processes of growth and the experience of the individual. Thus specificity of function is fixed by the relations into which the innate elements grow, and by the excitation from the environment. Whether the conclusions drawn from the *Amblystoma* apply to the higher vertebrates and man is an open question. Coghill believes that it is reasonable to suppose that in their broad outlines they do.

The problem of the relative influence of maturational growth forces and learning on human development has been approached from a number of standpoints. Such familiar instruments as the Developmental Schedules of the Yale Psycho-Clinic,⁷ the Merrill-Palmer Scale of Mental Tests,¹⁷ and the Terman Revision of the Binet-Simon¹⁸ have been organized on the assumption that we can differentiate levels of development in the individual from birth to maturity. That such development proceeds independently of environment, except where the latter deviates too much from the normal, is also inferred. Of environmental conditions which might be expected to influence development to some extent, we distinguish, for the sake of clarity, those which offer opportunities for the general exercise of developing abilities from those which offer opportunities for the specific practice of a specific ability.

Studies of the effect on development of opportunities for general exercise have been made by Blackhurst,² Hildreth,¹³ Goodenough,⁹ and Barrett and Koch.¹ With the exception of Blackhurst, whose study was confined to the value of play apparatus for motor control, the object of these experiments was to measure the effect of nursery-school training on the intelligence test scores of young children. To what extent would the early optimal opportunities for acquaintance with many materials affect general development? The conclusions, while in general tending to minimize the influence of this training on mental test scores, are somewhat at variance. Hildreth found that children with nursery-school training, upon entering the first grade, showed only a temporary superiority, and Goodenough's results tended to confirm this. In her experiment the advantage of the nursery-school group over the control group on the second examination was slight enough to be within the limits of chance. On the other hand, Barrett and Koch, using a nursery-school group and a control group of orphan children, found that after nursery-school training the IQ's of the nursery-school group

had risen from 91.71 to 112.57, while those of the control had risen from 92.59 to 97.71, or approximately half as much. An analysis of the nature of the nursery-school activities leads them to conclude that direct practice effects do not account for this rise.

Like the attempts to measure the effect of general exercise on development, a number of studies directed toward the problem of determining the effect of specific practice of a specific function have utilized certain developmental items for which standardized norms are available. This procedure seems desirable because these norms provide a fairly accurate idea of the status of the ability in question. At the same time, the experimenter may be criticizing the significance of these norms, for if practice shows much improvement in the ability tested by certain items they may prove unsuitable for inclusion in a developmental scale, in spite of age differentiation.

To test the hypothesis that intensive practice preceding full maturity may stimulate and increase the rate of growth of certain capacities, Gates and Taylor devised two tests, one on memory for oral digits,⁵ which has been standardized as part of the Stanford-Binet Intelligence Test, and one on speed of tapping.⁶ They matched a practice group of children in chronological age (four to six years), mental age, intelligence quotient, and ability in the initial performances of the activity to be tested. They found that after 78 days of practice in memory for oral digits the practice group had gained 2.07 digits, the amount gained by the average untrained child in six years, according to the Stanford-Binet Test. The control group had gained 0.67, or one-third as much. Particularly interesting is the fact that a retest four and a half months later showed that the advantage of the practice group had been entirely lost and that the two groups were as nearly equal as at the beginning of the study. Similar results were obtained in the tapping experiment. Gates and Taylor conclude that maturational processes, continuing in both control and practice groups, are not perceptibly affected by special training.

Gesell and Thompson⁸ point out the possibilities of studying maturation offered by the method of co-twin control. They report a study of monozygotic twins 46 weeks of age. For six weeks Twin T was given daily practice in climbing and cube behavior, while Twin C, the control, who had no training during that period, was given daily practice the following two weeks. At 55 weeks of age,

the climbing ability of the twins was nearly the same; that is, Twin C had accomplished as much in two weeks of practice as Twin T had accomplished in six weeks. From these data Gesell and Thompson infer that the superior performance of C, with only a third the opportunity for practice, must be due to maturation of the processes involved. Further, it was impossible to demonstrate any significant influence of training upon the cube behavior patterns of Twin T. Strayer's study¹⁰ on the vocabulary development of the same pair of twins was interpreted to mean that, in the field of language, a maturational difference of even five weeks had a definite influence on the relative effectiveness of training.

Other studies on the efficiency of learning at different levels have dealt particularly with the development of specific skills. Goodenough and Brian¹⁰ tested the development of skill in throwing rings over a post in three groups of preschool children. Over a period of 50 days, Group A practiced with no instruction, Group B received some instruction, and Group C received thorough instruction. It was found that during this period Group A (10 children) had progressed only 11.5 in comparison with 17.5 for Group B (6 children), while Group C (4 children) had made the tremendous gain of 42.5. It would be interesting to have the results of a fourth control group having neither practice nor instruction, and also to have the results of a retest a few months later.

In a similar investigation, Hicks^{11, 12} found that maturation and undirected practice in young children aged two and one-half to six and one-half years were more important in the development of the complex motor skill of hitting a moving target than was systematic, well-motivated practice once a week for eight weeks. In a parallel study the same children were given strength, perforation, and tracing path tests once during the period when the initial target tests were given and again three months later. The results showed that increase in skill on these tests without specific practice was comparable to increase in skill on the target test either with or without specific practice. The author believes, therefore, that improvement in skill may result from factors other than specific practice, such as the influence of structural maturation and of general practice.

That improvement in skill does result from factors other than specific practice there can be little doubt. The problem is one of

how much the environmental factors can contribute. It seems now that more experimentation on abilities which are in the process of development will add to our knowledge of the total picture.

THE PROBLEM

The present experiment, which utilized a group of Merrill-Palmer nursery-school children as subjects, was attempted in the hope that it might throw further light on the problem of maturation and learning in young children. The skills of buttoning, cutting with scissors, and climbing a ladder, which previous observations had shown to be developing in children between the ages of 24 and 36 months, were chosen for study.

Clues in regard to buttoning and cutting performances at this level appear in the Merrill-Palmer Scale of Mental Tests.¹⁷ According to this scale, the age at which the average child is first able to button a one-button strip is 30.5 months; the age at which he can first button a two-button strip is 33 months; and the ability to cut gashes is an average performance for children from 24 to 29 months of age. Though few children of this age are able to make a series of successive cuts in paper, there is so striking an improvement in this ability between the ages of 30 and 35 months that 32% of 50 children of this age tested in the standardization of the scale were able to cut such strips. In contrast to buttoning and cutting, which involve the development of power and skill in fine motor coordinations, climbing brings into play gross motor coordination.

EXPERIMENTAL PROCEDURES AND MATERIALS

Two groups of 15 children each were matched according to chronological age, mental age, sex, and approximate initial ability in the three skills—buttoning, cutting with scissors, and climbing. Because of sickness, only 10 children in each group completed the experiment. Table 1 gives the means for each group of children.

Although the first tests were made chiefly in December, a few of the children were tested in November, and a few the first week in January. The mean initial test for both groups falls in December.

TABLE 1

| <i>Group</i> | <i>Mean CA</i> | <i>Mean MA</i> | <i>Sex</i> |
|--------------|--------------------|--------------------|-----------------|
| Practice | 28.3 | 29.1 | 6 girls, 4 boys |
| Control | 28.6 | 29.9 | 6 girls, 4 boys |

Dating from the first week in January, the practice group received intensive training for 12 weeks. Table 2 shows the number of practice periods each child had.

After the first three weeks of training, the group was retested, and thereafter retests were made at two-week intervals when possible. At the end of the twelve-week period the control group was retested and then received intensive training for four days. One child in the control group developed measles after the second day of training, and one was unable to return for more than one day. Eight children, therefore, completed the entire intensive training program, while the other two completed enough of the program to permit the inclusion of their data. During this week of intensive training for the control group, the practice group received no specific training, but were tested at the beginning and again at the end of the training period.

TABLE 2

PRACTICE OF GROUPS, NUMBER OF PRACTICE PERIODS, INCLUDING RETESTS

| <i>Child</i> | <i>Buttoning</i> | <i>Cutting</i> | <i>Climbing</i> |
|--------------|------------------|----------------|-----------------|
| Kathryn | 26 | 29 | 42 |
| Mary E. | 24 | 26 | 37 |
| Marilyn J. | 27 | 30 | 46 |
| Jean | 24 | 29 | 41 |
| Cynthia | 26 | 30 | 44 |
| Frances | 28 | 29 | 45 |
| John | 24 | 27 | — |
| Patrick | 25 | 25 | 38 |
| Daniel | 24 | 28 | 37 |
| Stanley | 27 | 29 | 36 |

In the following discussion of the techniques employed in testing the three skills, a description of the testing and retesting periods is in each case followed by a statement concerning the practice period.

Climbing

1. TESTING THE SKILL ATTAINED IN CLIMBING. This first test consisted of climbing a three-step ladder $2\frac{1}{2}$ feet high, stepping on to a table at the top, and then climbing down again. On the table were various toys which might attract and please the child. These toys were changed frequently so that they did not lose novelty, and were varied to please individual children. Some of the boys, for instance, responded particularly well to engines, while other children liked toy animals. The usual formula was, "Let's see how quickly you can climb up on the table today," and "Now let's see how quickly you can climb down."

Going up the ladder, the child was timed from the second he put one foot on the first step until he had both knees or feet on top. Going down, he was timed from the second his knees were in the middle of the top of the ladder until both feet were on the floor again. The child's final score was obtained by averaging the time required for climbing up and that required for climbing down.

The pleasure the children experienced in the climbing test brought them into a cooperative frame of mind for the cutting and buttoning. They liked coming into the room to see what we had that was "new," and they particularly liked being on top of the table. After the child had examined the toy there, he was told he could hand it to the experimenter and she would put it on the little table (where he would next cut and button) while he climbed down. When this method was followed, the child would sit down at the little table ready to do the cutting and buttoning. Very often he was allowed to play with the toy for a short time before the next material was introduced. That the children retained their interest in the three tests is probably due very largely to this technique.

Only eight of the ten pairs of subjects completed this experiment. One child in the practice group was fitted with leg braces to straighten his knock-knees, and one in the control group did not take the initial test. The two groups of eight each were matched in chronological age, mental age, and sex, as shown in Table 3.

TABLE 3

| Group | Mean | Mean | Sex |
|----------|------|------|-----------------|
| | CA | MA | |
| Practice | 28.3 | 29.1 | 5 girls, 3 boys |
| Control | 28.6 | 29.9 | 5 girls, 3 boys |

In plotting the learning curve for the practice group, it was necessary to interpolate to determine the score of the children at definite two-week intervals for, though no child had had less than six retests, these did not fall at the same time for all the children. For the control group, the curve was drawn without interpolation.

During the practice periods, the experimenter tried in every way to help the children eliminate wrong methods and improve the time and quality of their performance; for example, in training the child to climb faster, the experimenter showed him how to put one foot, instead of two, upon each step of the ladder. In other respects the practice periods were similar to the test period, except that the performance was not timed.

Buttoning

1. TESTING THE SKILL ATTAINED IN BUTTONING. Usually the buttoning test was given immediately after the climbing test. In this test the child's performance was scored according to the degree of his success or the length of time he took to button strips offering different degrees of difficulty. The strip easiest to button was a folded piece of cloth with four buttons and corresponding buttonholes and a fifth button at the top already buttoned, so that the four buttonholes were in place over the buttons. Two of these buttons were $\frac{3}{4}$ of an inch in diameter and two $\frac{7}{8}$ of an inch. If a child buttoned one button, he was given a score of one point; if he buttoned all four, he was given a score of two points. Performances on the other button strips have been standardized as a part of the Merrill-Palmer Scale of Mental Tests. The material consists of three pairs of 3x6-inch flannelette strips, the first pair having one button and buttonhole, the second pair two buttons and buttonholes, and the third pair four. All these buttons are $\frac{5}{8}$ of an inch in diameter. That the child can button the four-button folded strip described above before he can manage the pair of strips having only one button is explained by the element of difficulty added when the two strips are separate and the buttonholes must be placed over the button before the child can button the strips.

The method of presenting the material to the child is practically identical with that used in the Merrill-Palmer Scale, and the reader is referred there for a full account.¹⁷ The folded four-button piece was presented first, and then, in turn, the one-button, two-button,

and four-button strips. No assistance was ever given in a test situation. The scoring shown in Table 4 * closely follows that standardized in the Merrill-Palmer Scale.

The higher the number of points earned, the better is the performance rated.

Nine of the ten pairs of subjects were included in this test. The tenth pair was omitted from the results for several reasons. Though Bernice, the tenth child of the control group, matched Cynthia of the practice group in cutting and climbing, she scored 8 of the possible 13 points in the initial buttoning test, while Cynthia had a score of zero points. Further, when Bernice was retested in April, she scored 6 points on the test and could not score more than 7 points at any time. Since one atypical case, like that of Bernice, can noticeably affect the results when the number of cases is so small, and since the two children were never well matched in this skill, this pair was omitted.

The two groups of nine children each were matched as follows (Table 5):

TABLE 5

| <i>Group</i> | <i>Mean CA</i> | <i>Mean MA</i> | <i>Sex</i> |
|--------------|--------------------|--------------------|-----------------|
| Practice | 30.5 | 31.6 | 5 girls, 4 boys |
| Control | 29.9 | 31.6 | 5 girls, 4 boys |

The mean curve for the practice group was obtained by interpolation, as described in connection with the climbing test.

2. PRACTICE PERIOD. During the practice period, the children had a wider variety of buttoning material from which to choose. A blue piece with two sizes of colored buttons down the sides made a very nice bag when all the buttons were buttoned. A red piece with black and white buttons in the form of a cross proved attractive to the children. There was also a blue folded piece with small colored buttons. During the practice period the child could select the ones he liked, though he was urged in various ways to make his choice from actual test materials. The experimenter assisted as much as was necessary and at the same time acceptable to the child. In practicing with the strips, for example, the younger children had to

* [Table omitted]

be coached on the method of getting the buttonhole exactly over the button.

Some of the children enjoyed buttoning; for others it was necessary to make the buttoning part of a game. One child who felt no fondness for buttons liked to put the buttoned strips into the baggage car of a toy train (secured in the climbing experiment) and send the train off on imaginary trips. Another child pretended they were blankets for the animals and after buttoning the strips put them on the animals to keep them warm. Though the interest in buttons was far from spontaneous toward the end, a fair degree of interest was maintained in ways such as these, varying much with the individual child.

Cutting

1. TESTING THE SKILL ATTAINED IN CUTTING. The cutting test was given after the buttoning test. To secure a measure of the child's performance and progress in this test and to provide a basis for scoring, graph paper was used for the test material. A sheet of $8 \times 10\frac{1}{2}$ graph paper was cut vertically into two equal parts. On one of these were drawn two vertical red lines, 10 centimeters high and parallel to each other; on the other a line rising to a height of 14 centimeters was drawn at an angle of 45° to the base of the sheet. The child was given the sheet with the two vertical red lines and told to cut as carefully as possible along one of them, the experimenter indicating the point where he was to begin.

This cutting test held considerable interest for the children. Sometimes the parallel vertical lines on the graph paper were supposed, when connected, to form a door. After the child had cut along one of the lines, the experimenter would cut across the top to the other side and fold the piece back so that it looked like an open door and supported the paper. At other times, the cut paper was called a house, the experimenter cutting a "smokestack" from the top after the child had finished cutting. Other similar devices were used to hold the child's interest.

Since there is no test sufficiently similar to this to prove of assistance in scoring the child's performance, it was necessary to devise a scoring system. On the basis of the children's performances, a scale of successive levels was devised, ranging from 100 points for

the poorest performance—no cutting at all—to zero for perfect adherence to the red-line length. Deviations from the red line were computed by counting the number of two-millimeter squares between the red line and the cutting. This total was then divided by the height attained. A system of weighting was soon found to be necessary, since it was obvious that the chances of any degree of deviation from the line were considerably less when the child could cut only 4 centimeters along the line than they were when he could cut the whole length of the line. The method of scoring is shown in Table 6.*

The data for all the ten pairs of children were available in the cutting test. The learning curve for the practice group was obtained by interpolation, as in the other two tests.

2. PRACTICE PERIOD. During the practice period the graph sheets just described and picture pages torn from magazines proved interesting as practice material. If the child was about 24 months of age, he had to be taught how to hold the scissors and coordinate the movements of the two hands; if a little older, how to make several successive gashes in the paper; and finally, he had to be taught how to guide the scissors along the lines.

RESULTS

At the end of the 13 weeks covered by the study, when the practice group had been trained for 12 weeks and the control group had been given a final week of intensive training, the outstanding result is a marked similarity in the gains made by the two groups. Though the practice group leads in the gain made in cutting and buttoning, the groups are practically the same in climbing. In the buttoning test the practice group gained 21.4 points and the control group 15.6, or 73% as much. In cutting, the practice group gained 47.5 points and the control group 40.4, or 85% as much. The difference between the two groups in climbing is slight and unreliable—9.2 for the practice and 9.6 for the control.

It is evident that the two groups were very evenly matched in all three initial skills, for only in cutting is there a difference of even slight reliability. In April, after the 12 weeks of intensive practice,

* [Table omitted]

TABLE 7

SUMMARY: PROGRESS OF THE PRACTICE AND CONTROL GROUPS IN CLIMBING, CUTTING, AND BUTTONING

| | <i>Initial test December</i> | <i>After 12 weeks April</i> | <i>After 13 weeks April</i> | <i>Total gains</i> |
|--|----------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| BUTTONING | | | | |
| (N = 9 in practice and control groups.) | | | | |
| Practice group | | | | |
| Mean \pm P.E.M. | 6.6 \pm 2.1 | 30.5 \pm 3.9 | 28.0 \pm 3.7 | 21.4 \pm 3.4 |
| Control group | | | | |
| Mean \pm P.E.M. | 7.7 \pm 2.1 | 19.0 \pm 2.6 | 23.3 \pm 3.1 | 15.6 \pm 2.2 |
| Difference | | | | |
| between means | 1.1 | 11.5 | 4.7 | 5.8 |
| P.E. of diff. | 2.9 | 4.7 | 4.8 | 4.1 |
| Diff./P.E. of diff. | 0.38 | 2.47 | 0.98 | 0.141 |
| Reliability of difference | Unreliable difference | Fairly reliable difference | Unreliable difference | Low reliability |
| CUTTING | | | | |
| (N = 10 in practice and control groups.) | | | | |
| Practice group | | | | |
| Mean \pm P.E.M. | 64.3 \pm 4.5 | 19.3 \pm 5.6 | 16.8 \pm 5.0 | 47.5 \pm 3.8 |
| Control group | | | | |
| Mean \pm P.E.M. | 73.6 \pm 4.4 | 40.3 \pm 8 | 33.2 \pm 7.2 | 40.4 \pm 4.8 |
| Difference | | | | |
| between means | 9.3 | 21.0 | 16.4 | 7.1 |
| P.E. of diff. | 6.3 | 9.8 | 8.8 | 6.1 |
| Diff./P.E. of diff. | 1.48 | 2.14 | 1.86 | 1.25 |
| Reliability of difference | Low reliability | Fairly reliable difference | Low reliability | Low reliability |
| CLIMBING | | | | |
| (N = 8 in practice and control groups.) | | | | |
| Practice group | | | | |
| Mean \pm P.E.M. | 17.8 \pm 1.08 | 8.8 \pm 9.5 | 8.6 \pm .73 | 9.2 \pm 1.33 |
| Control group | | | | |
| Mean \pm P.E.M. | 18.4 \pm 1.76 | 12.9 \pm .70 | 8.8 \pm .75 | 9.6 \pm 1.11 |
| Difference | | | | |
| between means | 0.6 | 4.1 | 0.2 | 0.4 |
| P.E. of diff. | 2.06 | 1.18 | 1.05 | 1.73 |
| Diff./P.E. of diff. | 0.29 | 3.47 | 0.19 | 0.23 |
| Reliability of difference | Unreliable difference | Fairly reliable difference | Unreliable difference | Unreliable difference |

there is a reliable difference between the two groups in all skills, and at the time of the final retest the practice group has a lead of low reliability over the control in cutting and buttoning, but the difference in climbing is negligible.

Certainly, the remarkable relative gains of the control group, with so limited an amount of training, suggest that factors other than specific training contributed to the development of these three skills. This is borne out by the fact that between the initial test and the first retest in April, before the week of specific training, the control group had gained 57.3% of its total score in climbing, 72.5% of its total in buttoning, and 82.4% of its total in cutting. A comparison of the total gain made by the control group with the gain made by this group during the one week of intensive training also throws some light on the nature of the factors involved. We find that in climbing 42.7% of the total gain comes during this week; in buttoning, 27.5%; and in cutting, 17.6%. These gains are all considerably in advance of those made by the practice group during any one week of its 12-week training period. In fact, the practice group in climbing required all of the previous month to make 42.7% of its total points, a feat accomplished by the control group in one week. Thus, it would appear certain that the rate of learning was accelerated toward the close of the 13-week period covered by the investigation.

The learning curves (Figures 1-3) for climbing are particularly significant in offering clues for the interpretation of the gains. An examination of the curves reveals positively accelerated learning for the practice group up to the last retest in March, learning being much more rapid toward the end of the period. On the supposition that the control group lags behind the practice group throughout (a fair assumption because it is behind on every test), it follows that the curve of improvement for the control group is also positively accelerated between the initial trial and the first retest, for without positive acceleration it would cut across the practice curve, as in the figure. This positive acceleration shared in by both practice and control groups we may interpret as signifying more favorable maturation and general developmental potentiality for climbing toward the end of the period. The practice group has taken a pronounced lead by the second week in April, showing that training effectively capitalizes this potentiality, and the very rapid improve-

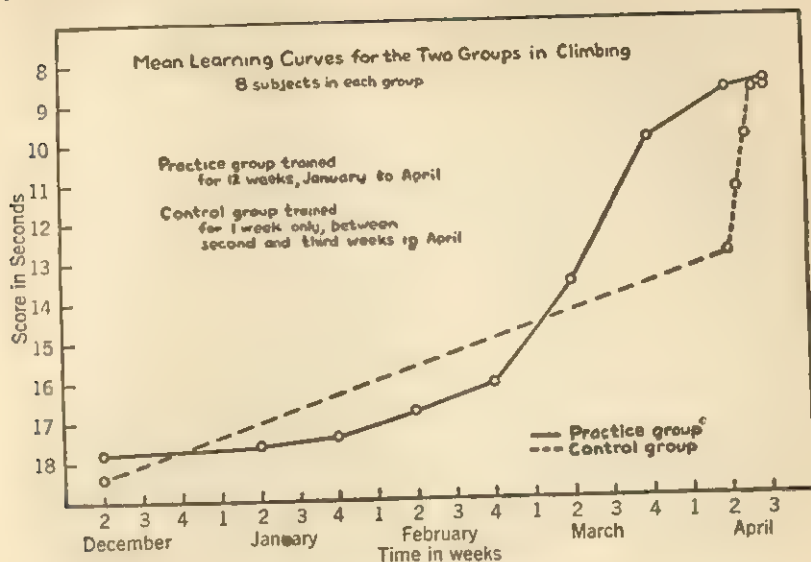
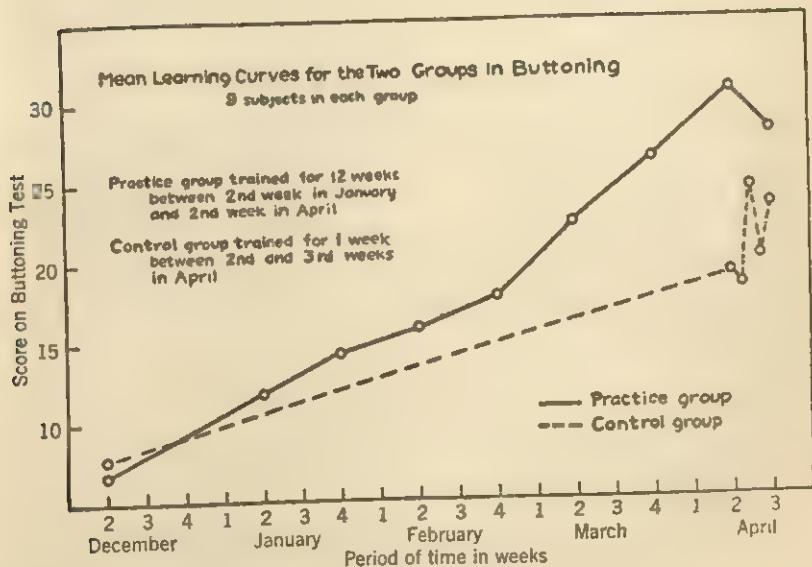


FIGURE 1



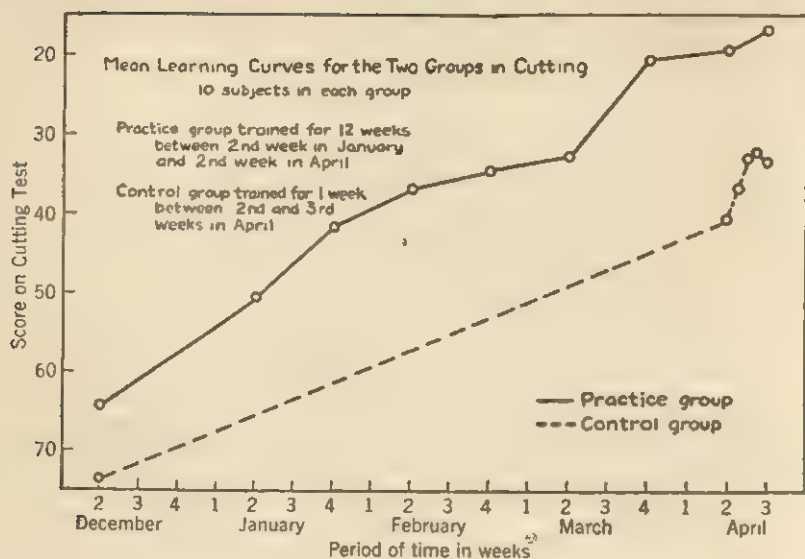


FIGURE 3

ment of the control group during the following week is further evidence in the same direction. That the two groups at the end are almost identical in their mean scores, the one after 12 weeks of practice, the other after one week of practice, shows the importance of the underlying factors. These curves therefore demonstrate more clearly than the others both the importance of the underlying factors and the temporary acceleration which can be introduced by special training. The decrease in acceleration of the practice group after the end of March suggests that there may be a limit to improvement during any given developmental stage, which is, of course, to be expected.

Where the curve for climbing shows only a slight gain during the first few weeks of training, the learning curve for buttoning rises steadily from the beginning, with a marked acceleration at about the middle of the training period continuing until the end of the period. During the 13th week, when the practice group had no training, this curve shows a decline of several points. Whether this drop is to be attributed to the discontinuance of training or to the fact that the children's interest in buttons had reached the saturation

point is not clear. In view of the findings of Taylor and Gates, one may conclude that the gains made in a developing skill like buttoning as the result of special training are unstable in character and that the ability tends to resume its former level after a period of disuse. However, since the data for cutting and climbing do not show a similar drop after the end of the practice period, it may be that the length of the period of disuse necessary to bring about this drop in the level of ability achieved may vary both with the skill itself and with the degree of skill attained.

A consideration of the data on cutting and buttoning yields some information concerning the values of these two items as part of a mental test battery. As was mentioned earlier, even though certain skills show age differentiation, they may not be desirable in such a battery if, at the same time, they are much affected by special training. If it had been possible to retest the practice and control groups at a later period the results bearing on this point would be more clear cut. Nevertheless, it is evident from the slight differences between the two groups at the end of the experiment that special training, though it had some effect, was far outweighed by the general developmental factors. The fact that the curve for buttoning had already started to decline lends credence to the view that the slight superiority attained in this skill may have been temporary.

In interpreting the findings of this experiment it must be remembered that the control group was given a retest and four training periods during the one week of intensive training, while the practice group averaged only two training periods a week during 12 weeks; consequently, the frequency of the practice periods may be one factor in determining the increase in the rate of learning evident at the close of the study. It is impossible, also, to eliminate the factor of specific practice in interpreting the gain made by the control group during the period of no specific training. Yet children from 23 to 34 months of age are unlikely to be required to button their own clothes, and they are too young to take much interest in cutting unless they have considerable supervision and assistance. Climbing is usually a favorite activity, but whether a child does much of it at home depends on a number of conditions, such as the kind of play space available and the attitude of the parents toward allowing the child to climb.

In all skills, however, even though we can say that it is unlikely

that the children have had much practice in these specific skills in the home, we cannot rule out, as Carmichael did by drugging his frog and salamander embryos, the factor of constant practice in related manipulatory activities. The child is continually handling objects and gaining greater skill in coordinating the fingers and the two hands as well as gaining skill in gross motor movements. Consequently, when he is retested after four months, it is to be expected that he will have made progress quite aside from the specific training he has been given. Whether or not we shall term this progress "maturation" depends largely on our definition of the word. Gesell and Thompson concluded, from the results of their study of twins mentioned earlier in this paper, that maturation was the dominant factor in the climbing ability of the twins; but, of course, the twin observed as a control, like the children of the control group in the present study, was gaining much general practice in activities related to his learning to climb at a later time—kicking, balancing, and the like.

In this experiment, we cannot certainly distinguish between the gain to be attributed to maturation alone and that due to maturation plus practice in activities related to the specific skills studied. What does appear is that maturation, plus this related general practice, accounts for the great gain made between the initial test and the initial retest of the control group, and that specific training throughout the twelve-week period was a far less important contributing factor in the development of these three abilities than was this general developmental trend.

SUMMARY

Two groups of ten children each, aged 24 to 36 months, in the Merrill-Palmer Nursery School were equated for chronological age, mental age, sex, and approximate initial abilities in three skills: buttoning, cutting with scissors, and climbing. The practice group was given 12 weeks of practice, with retests at two-week intervals. The control group, without special practice in the meantime, was tested at the end of the 12-week period, and then given four days of intensive practice. The practice group and the control group were both tested again after this period. The initial differences between

control group and practice group were unreliable on all the tests. After the 12 weeks of practice, the practice group exceeded the performance of the control group on all the tests, but one week of practice by the control group was sufficient to bring the scores of the control group and the practice group to similar levels. The rapid relative gains of the control group are interpreted to mean that factors other than specific training contributed to the development of these three skills, factors which may be partly accounted for by maturation and partly by general practice in related skills. There is evidence from the learning curves of the practice group in buttoning and climbing that improvement is more rapid in the latter part of the training period, consistent with the accelerated learning of the control group at the end of the experiment.

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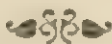
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WILLARD C. OLSON AND
BYRON O. HUGHES

Concepts of Growth: Their Significance for Teachers

Teachers and administrators seldom, if ever, have made use of all the relevant and reasonably valid knowledge we have about human development. Many important implications of growth studies, for example, seem to be overlooked in large areas of educational practice. Professor Willard C. Olson and his associates, who have produced much of our present information about child growth, are well known for their attempts to reduce this gap between what is known and what is used.

The authors suggest seven factors that presumably are significant in understanding the growth of children. For each factor, they offer some implications for teaching method, administrative practice, and educational policy.



The growing body of data and principles about human growth and development offers an ever more secure foundation for the adoption of philosophies of growth in the classrooms of the nation. On the technical side, generalizations are increasing in number and proceeding toward greater precision and scope. On the practical side, more teachers are attaining the fundamental understanding that enables them to meet new problems at a high level of professional competence and confidence.

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The literature that definitely attempts to bridge the gap between the laboratory and the classroom is meager. The resources for such a literature are enormous. The writers will attempt to present concepts and illustrations that to them appear to be of peculiar importance in the classroom. The illustrations are drawn from research at the child development laboratory of the University Elementary School at the University of Michigan.

While maintaining the importance of the point of view of the child as a whole, the writers have selected examples of historical and immediate concern to teachers. This article will stress factors of significance in understanding the growth of individuals and the implications of these factors for school practices. A series of studies made in the laboratory school stress the relationships that exist among members of classroom groups.¹ Both individual and group concepts are needed for complete understanding.

Children Differ in Rate and Level of Growth

Every classroom teacher is impressed with the fact that children are not alike. If tests have been administered at any given time these impressions have been confirmed in an objective manner. Research in child development gives added knowledge of the nature of the differences and how they persist through time. By following growth in a number of characteristics more understanding of total significance is secured than by studying one attribute.

Figures 1 and 2 illustrate how two boys grew through time. Repeated measures were made and the original units were translated into an age scale as described in other publications.² Thus in the figures height in inches has become height age (H.A.); weight in pounds, weight age (W.A.); number of permanent teeth erupted, dental age (D.A.); extent of ossification of hand and wrist bones, carpal age (Ca.A.); and strength of grip in kilograms, grip age (G.A.). In the conventional manner success in intelligence tests is described by mental age (M.A.), and achievement in reading by reading age (R.A.).

The figures are constructed by plotting growth ages for a particular attribute above the chronological age at which it was obtained and by connecting the points. Thus the record for the boy in Figure 1 (B1) starts at about 36 months of age in the nursery

school while the record for the boy in Figure 2 (B28) starts in the kindergarten at about 60 months of age. These boys were selected because they represent the extremes in organismic age of 28 boys being given intensive and systematic study. Organismic age is a

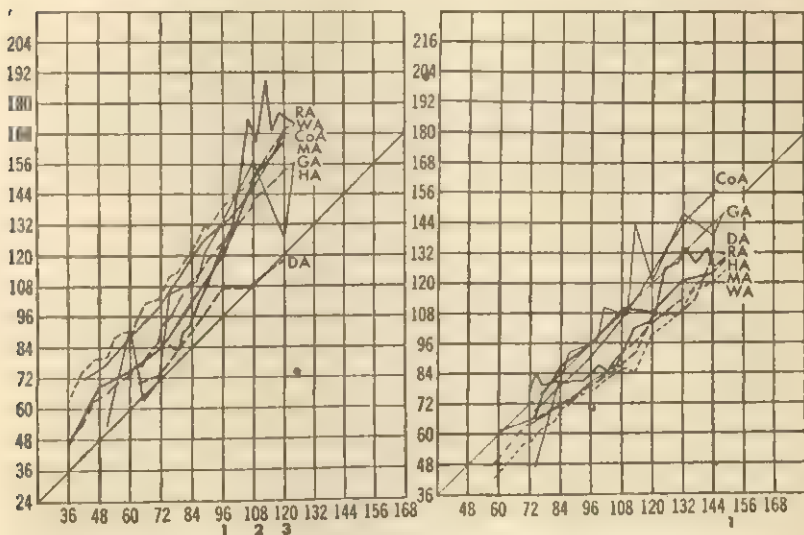


FIGURE 1 (left). Growth of a boy at a high level (B1). FIGURE 2 (right). Growth of a boy at a low level (B28).

coined name for the average of all available growth ages at a point in time. A straight diagonal line has been drawn through the intersection of the scales for chronological and growth ages as a convenient reference point for average growth—12 months of growth for 12 months of living.

It will be observed that most of the curves for B1 remain above the line of average development throughout the period while those of B28 remain below the line. The various attributes of growth tend to cluster together and there is some continuity throughout the years. The numbers on the base line indicate that Child B1 had pubic hair at 108 months which was pigmented at 120 months. Pubic hair has not yet appeared in Child B28 at 150 months. The differences between Child B1 and B28 are deep seated. The first menstruation for the mother of B1 occurred at 11 years of age while

that for the mother of B28 was at 15. B1 weighed 9 pounds at birth while B28 weighed $4\frac{1}{2}$ pounds. B1 was breast-fed 5 months and B28 not at all. B1 had his first tooth at 6 months and B28 had a tooth at 12 months. B1 reverses the trend by delaying talking until 20 months while B28 talked at 15 months.

Detailed case records are available for these boys showing interesting differences in health, behavior and personality. The inescapable fact of persistent individual differences in growth as illustrated by B1 and B28 must be taken into account in implementing a program based upon the philosophy of growth. Policies and practices that take differences into account will be elaborated elsewhere.

Growth Has Some Unity When Viewed as a Whole

Since growth as expressed in a child is a result of the action of the environment on the potential that originally existed in a single cell, it is not surprising that some tendency toward unity continues to exist through the years of growth. The research literature has demonstrated this tendency in a number of ways. The most common method is to calculate coefficients of correlation between the various attributes of growth. Such research rather regularly reports positive intercorrelations. In a few attributes and in some samples of children, the values may drop very close to zero. An accidental negative correlation may at times appear. The trend of the evidence, however, supports the conclusion of some tendency toward unification in childhood.

The writers currently are investigating another approach to the problem in which various aspects of growth are viewed simply as interchangeable samples of total growth, finding one expression in one individual and another in another. The essential conclusion is the same, i.e., that the various attributes in an individual tend to cluster about a center of gravity of growth of that individual and that the freedom to vary is restricted. The detailed support has been worked out, but the manuscript has not been printed. The thought can be illustrated by Figures 1 and 2 by pointing out that any measure collected for B1 tends to cluster with the others and that the same is true for B28. The finding is important for education in that achievement in school, illustrated by reading in the diagrams, tends to be an expression of total growth. Consideration of the whole

child thus becomes more vital and expectancies for a given child are modified accordingly.

Children Differ in the Pattern of Growth

Children vary in the growth curves that they present both in changes with time and in the arrangement of various aspects within the pattern. Thus in Figures 1 and 2, the children differ not only in the general level at which they are growing, but also in detail. In Figure 1 reading age is finally at the top of the pattern while in Figure 2 reading age is near the middle.

Figure 3 gives a more dramatic illustration of variations in pattern and the significance of these variations for education. The attributes of growth for this girl are somewhat more scattered than for most children. The physical assets are particularly high with height, weight, carpal development and strength above the line of average growth and with intellectual factors such as mental age and reading age several years below. If attention is focused on the mental age and reading, it would appear that this child has borderline intelligence. No observer is likely to reach this conclusion if the behavior as a whole is viewed. This child in the elementary period was one of the best baseball players and runners in the room, could sing well, and had artistic talents beyond the average. As she went on into high school she did well in these areas. Her organismic age is not markedly retarded and a measure of social age, not shown in the figure, is slightly above the average. She is very good at taking care of young children. She does not do well at abstract intellectual tasks. "Capitalize on strength" is an essential aspect of the philosophy and practice of a growth point of view in a classroom. It would be a sad mistake to stress competitive and comparative methods for a child growing as in Figure 3.

Growth With Time Is a Highly Individual Matter

Differences in the level of various attributes of growth have been stressed in connection with Figure 3. The changes that occur in children with time are also important in a consideration of patterns. When the results of tests secured at a particular time are made available without the growth point of view, serious mistakes of in-

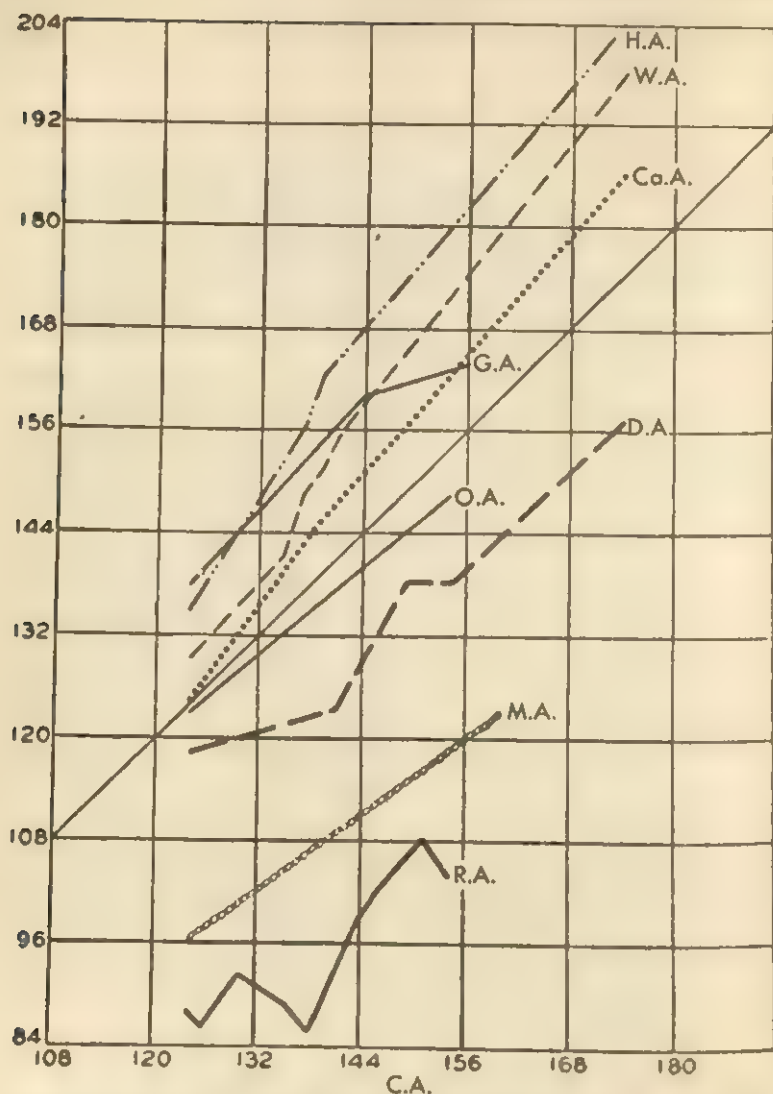


FIGURE 3. Pattern of growth for a socially competent, mentally retarded girl.

terpretation may be made. For example, in the examination of 56 individual growth curves in reading, the writers could not find a single child with a growth curve of the shape that would be described by the average values or norms.

Figure 4 traces the growth in ability to read in 28 boys. The designation B1 and B28 is for the purpose of identification and refers to the ranking of the boys in organismic age when they were 9 years of chronological age. Figure 5 tells the same story for 28 girls. The lines are so intertwined as to be indistinguishable in de-

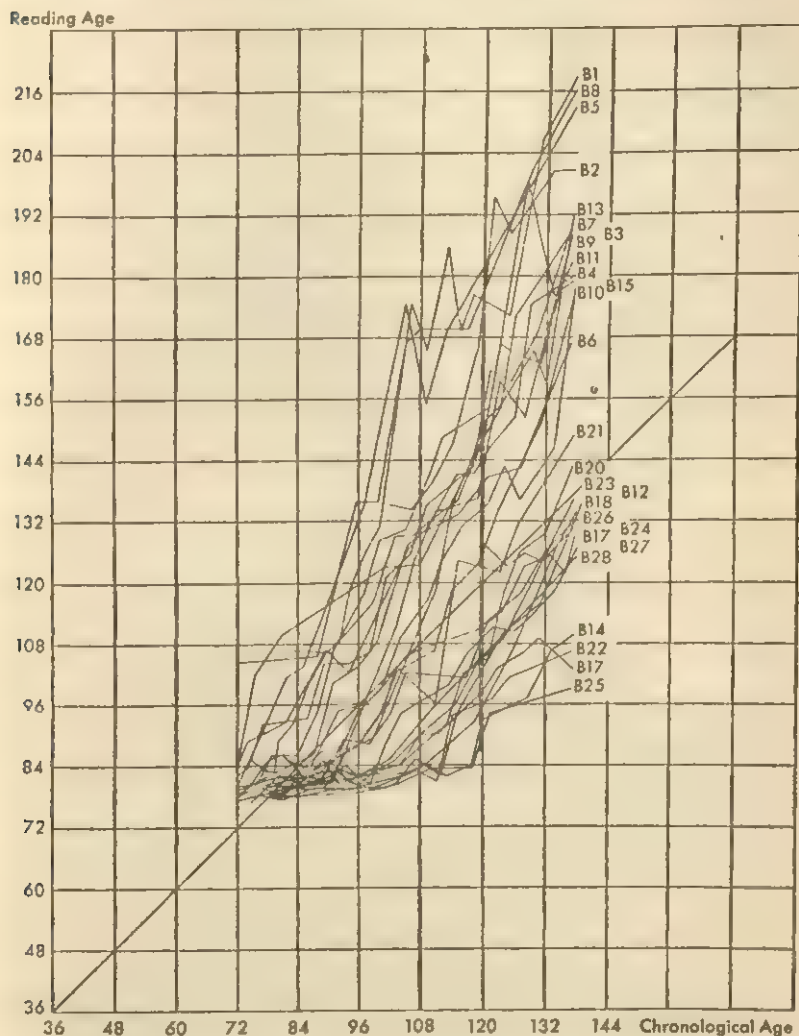


FIGURE 4. Growth in reading age for 28 boys who were ranked according to organismic age (B1 to B28) at chronological age 108 months.

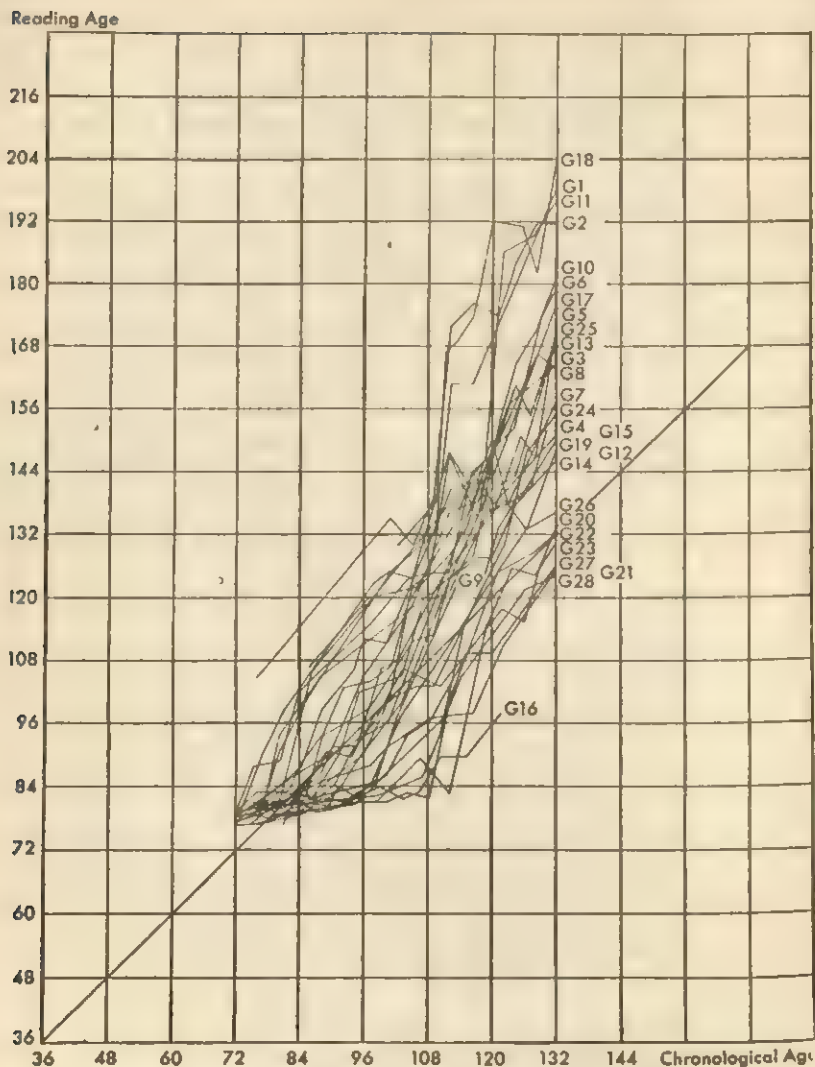


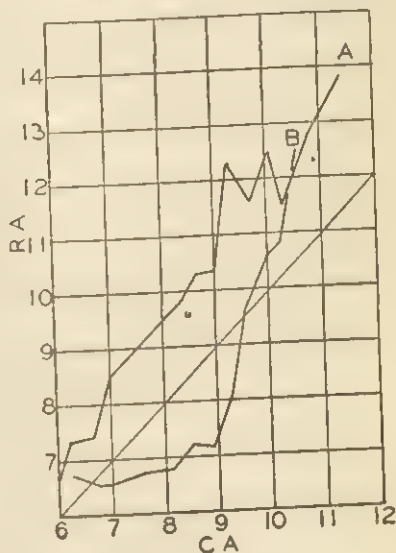
FIGURE 5. Growth in reading age for 28 girls who were ranked according to organismic age (G1 to G28) at chronological age 108 months.

tail. However, problems of level and direction become apparent. The total group of girls presents a more compact picture than the boys and it is obvious that the girls most delayed in reading tend to start upwards between 9 and 10 years. The boys who are delayed,

however, may remain at low levels even at 10 or 11 years of age. It is not an accident that boys supply a disproportionate number of cases for reading clinics.

A quantitative analysis of some of the reasons for the differences in the growth curves of individual children is being pursued. One of the writers has already reported in some detail on the differences between G7 and G24 called A and B in Figure 6.³ Although intelli-

FIGURE 6. Contrasted patterns of growth in reading of two girls of equal mental ability but unequal total maturity. (Reproduced by permission of the Michigan Education Association.)³



gence quotients have fluctuated slightly year by year, the average for each over the period is 118. Detailed study explains some of the reasons why their pattern of growth in reading has been so different. Child A had an earlier maturing mother (menarche at age 14) and is maturing early herself. Child B had a later maturing mother (menarche at age 17) and is maturing later than Child A. When total organism is taken into account, including all of the various attributes described elsewhere, Child A is actually an older organism, age for age, than Child B. Child B rejected reading experiences violently during the period of plateau and sought them avidly during the period of spurt. According to the growth philosophy and data it would be quite incorrect to call Child B a case of "reading disability" in spite of the retardation before age 9 and the discrepancy between reading and mental age.

*Membership in a Given Family Is Influential
in Determining the Pattern of Growth*

In the previous discussion the writers have noted that the reasons for differences in the growth of children are deep seated. The nature of some of these differences has been indicated in discussing the two girls of approximately the same intelligence who presented such diverse patterns of growth in reading. The writers have recently prepared the growth records in reading for 46 pairs of children where each pair comes from a given family. It becomes evident at once that a very important factor in the shape of a reading curve is membership in a family.

Pairs of curves illustrating high, intermediate and low achievement are presented in Figure 7. The chronological age of the children is on the base line and the growth in reading along the vertical axis. A and A' are brothers born 25 months apart. B, B' and B'' are three brothers born at intervals of 27 and 25 months, and C and C' are brothers born at an interval of 36 months. By the longitudinal method it is possible to compare them as if they were twins advancing together. The rate and level of advancement in reading for A and A' and C and C' are, of course, strikingly similar. B and B' cling rather closely. At 10 years of age B'' drops several years below in reading as compared to his older brothers and converges toward them near the close of the record.

These curves are particularly provocative to the person who may have been inclined to feel that level and rate of progress in reading were primarily a matter of instruction. It is true that these children would not read at all in a culture which did not provide the experience. The examination of the whole body of the material, however, makes it apparent that cases of extreme delay such as C and C' cannot be understood simply by assuming that instruction is at fault. While reading has been used for illustrative purposes other aspects of growth behave in similar manner.

It should be pointed out that the 7 boys in Figure 7 encountered substantially the same school environment but their reactions in reading have been strongly influenced by the fact that they came from a given family with all that that implies for differences in heredity and nurture. Teachers should not expect the same effects from the same instruction or from the best possible adaptation of

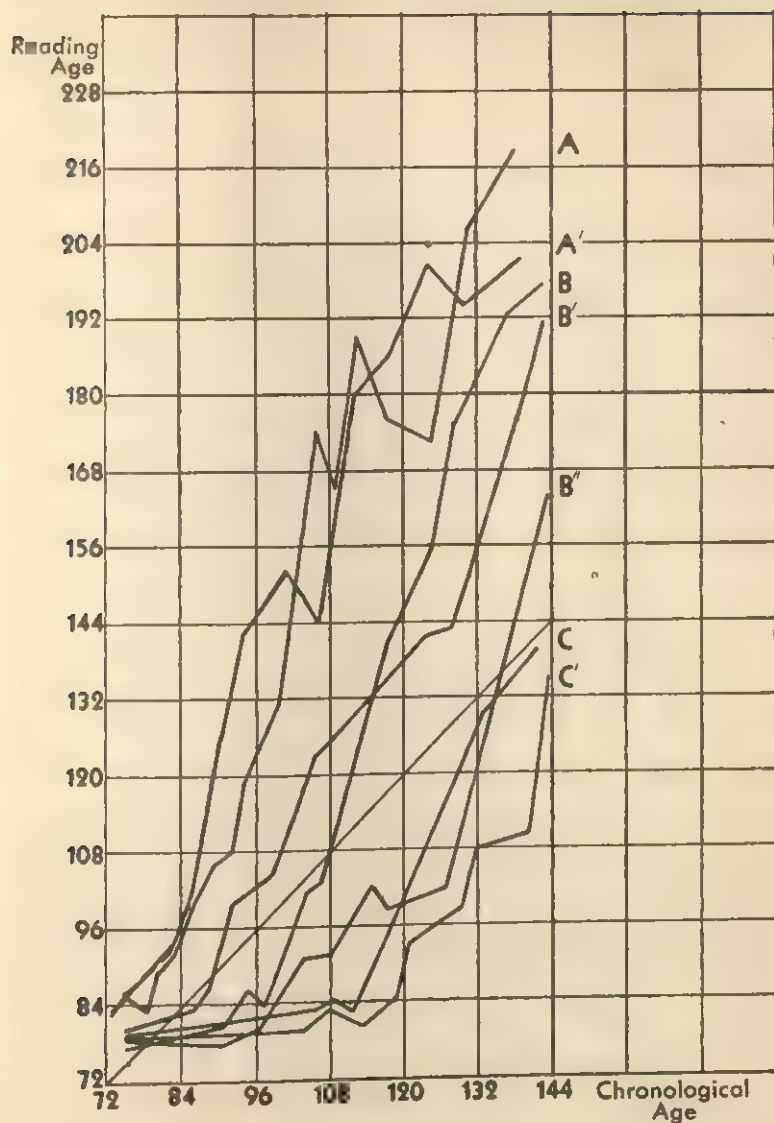


FIGURE 7. The growth curves for children from the same family show a resemblance. Compare *A* with *A'*; *B*, *B'* and *B''*; and *C* with *C'*.

instruction to the individual. The folly of a common expectancy on the part of teacher, administrator, or parent is obvious since achievement is only partially under the control of the educational process.

*Growth Has Stability and Continuity and
Makes Its Demands for Nurture*

If the reader will reexamine Figures 1 and 2 he will be impressed by the general picture of stability of the level of growth with time. Although detailed items in each pattern of growth show periods of plateau and spurt there appears to be some unifying factor in rate of energy available for growth which keeps the individual on his course.

It is interesting to study the curve of growth when organismic age is taken as the best single expression available to us of the average growth for an individual. One hundred eleven curves were plotted and arranged in order of magnitude of organismic age as of chronological age 8. Children numbered 1 (Boy), 23 (Girl), 42 (Boy), 90 (Girl), and 171 (Boy) are given in Figure 8 for illustrative purposes.

It is probable that the age unit method and the use of averages make the curves unusually straight and smooth. The fact remains that the individual differences in total growth are highly predictable and continuous with time and even tell much about the achievement of the child in the years that follow the ages that have been plotted. The data also suggests some balancing mechanism which releases energy for the production of growth in an orderly fashion. Growth itself is a demanding process impelling the individual to seek nurture to supply it. A slowing down in growth alters attitudes and feelings.⁴ In a free environment in school, level of growth makes for differences in the number and difficulty of books consumed.⁵ Schools traditionally have emphasized the stimulating conditions and the learning process. Growth studies are giving a better understanding of the learner.

*Children Viewed as Wholes Are More Alike
Than Children Viewed as Parts*

Curriculum materials and teaching methods once took an extreme swing in the direction of adaptation to individual differences

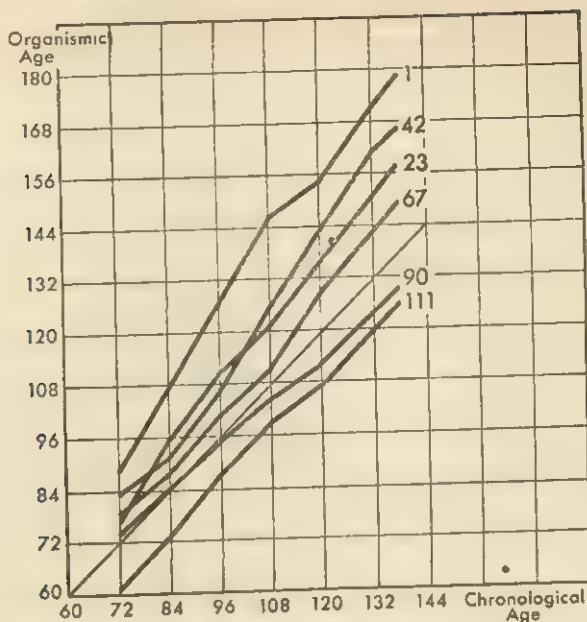


FIGURE 8. Regularity of growth in organismic age for illustrative children ranking 1, 42, 23, 67, 90, and 111 in a sample of 111 ranked at 96 months of chronological age.

in some one attribute of interest in schools. At the height of the enthusiasm many methods were proposed for the sectioning of classes, for classification according to special abilities, and for adjustment through promotion and retardation. For the most part the attempts were disappointing in that individuals with similar characteristics seemed to make the same progress regardless of the administrative plans. This is not surprising to the student of growth.

Individual differences among children are most impressive when one segment of total growth is viewed. For example, if we calculate the average deviation for reading age for the group of 56 children described elsewhere we find that it varies with age but averages 18 months. If we calculate the same measure for organismic age we find it to be only 8.5 months. Thus as we move toward the objective of total growth in the elementary period we may emphasize

those things in which children are alike as well as those things in which children differ more widely.

Some Implications of Growth Studies for Teachers

"SEEKING" BEHAVIOR. Differences in growth among children of the same age make for differences in reaction to the environment that is supplied. The child is not a passive recipient of stimulation. He reaches out for it according to the maturity of his total and partial growth and the energy at his disposal. He reacts selectively to the surroundings that are supplied and creates his own world of experience within them. He tends to reject the experiences for which he is not ready. Teachers may make full use of "seeking" behavior by providing a school environment in which children may find suitable experiences of a wide variety in kind and difficulty. No narrowly conceived curriculum of fixed content can attain this goal.

Seeking behavior also underlies a principle of method—children should participate in the determination of their curriculum experiences both individually and in groups. The planning period, continuous interaction, or observation of behavior thus give the teacher her safest guide as to the experiences for which the group as a whole is ready and the way each individual may be expected to relate himself to them. These techniques on the part of the teacher also give the children experience in cooperative planning. Growth does not occur in a vacuum and seeking behavior and environmental stimulation are interactive processes. The problem is one of relative emphasis.

PACING, FORCING, AND DELAYING. When the teacher insures an environment adequate to the needs of all the children and adjusts his expectancy for each child according to the level and pattern of growth the technique may be called "pacing." This simply means that the teacher meets the "seeking" level by an expectancy and experience in close harmony with it. The child's aspirations and performance are not in conflict with the expectancies of the teacher.

A segment of the general and teaching population continues to have large confidence in specific instructional techniques and experiences as a means of achieving a high level of performance in a child. This confidence was supported originally by laboratory

studies of learning. According to this idea a clever teacher with a clever method, excellent material, and time and persistence can produce achievement in a child beyond that which he would attain by seeking and pacing. Thus someone might attempt to justify the early introduction of school subjects on the basis of this point of view. This is sometimes called "forcing" in the sense that there is an attempt to push up the level of the growth curve. The writers admit that the total evidence is still inadequate but they are skeptical whether a forcing method produces anything more than a temporary effect of very limited size.

Their study of the effects of special instruction, feeding, and the administration of special growth substances supports the idea that deprived children show some responsiveness to special treatment, that well-nurtured children do not, and that the special effects do not materially upset individual differences or persist for a very long period of time. They prefer "pacing" to "forcing" theory.

It has been advocated that schools should make a deliberate attempt to delay experiences. The experiments rather regularly demonstrate that the gains that subsequently follow when the experience is introduced will be very rapid and that there will be no permanent impairment of the objective desired. The more systematic studies of delayed experience in reading, stair-climbing, and language, as well as more informal studies of delay in arithmetic suggest that this will be true. The writers are more inclined to stress "seeking" and "pacing." If this results in delay, delay there should be. If on the other hand, some rapidly growing children seek reading and number experiences at an early age in nursery school and kindergarten, there seems no good reason to exclude them. Growth, after all, occurs in a context supplied by the total environment.

ADMINISTRATIVE IMPLICATIONS. What administrative policies and practices affecting children and parents should prevail in a school that has accepted the data, principles, and philosophy of growth? A few may be suggested for illustrative purposes. The strong tendency for achievement in school to reflect total growth and family patterns calls into question the policy of competitive and comparative marks and formal report cards. Elementary schools rapidly have been giving up such techniques as ineffective and incompatible with modern knowledge. Formal marking practices persist as a cul-

tural survival where communities lag in in-service and parent education or where conservative and reactionary groups have attained dominance. The investment in time necessitated by the newer techniques of conferencing and mutual education brings returns in the long run. At times administrators have hoped that schools and teachers could be appraised by measuring the growth of the children. The idea sounds logical but there is nothing in the growth studies that gives much reassurance that such a measure can be used and properly interpreted.

Classification and promotion problems are of continual interest for administrative policy.⁶ Growth in achievement, just as in height and weight, appears to be independent of how children are grouped. It is obvious that a thoroughgoing growth philosophy finds the criteria for placement in the growth of the individual and his social relations rather than in arbitrary grade standards. The growth philosophy and data justify much experimentation with the nature of the groups that are to be maintained and how individuals should be placed in them. The growth philosophy tends to bring children through the elementary grades without failure. If reclassification is necessary after individual study because of extreme immaturity, retention is not thought of or acted upon as a failure on the part of the child.

It is probably fair to say that secondary schools, on the whole, have been relatively more committed to the selective philosophy than the elementary schools. The struggle of philosophies sometimes creates problems of articulation at the seventh grade level or the ninth grade level, depending on the type of school organization. There is evidence for rapprochement.

Summary

Research in child development is providing working generalizations for the classroom teacher. Children differ in their rate and level of growth and the acceptance of these differences permits policies which make schools happier places for parents, teachers, and children.

Growth tends to be unified. Schools may properly take the view that they must be concerned with the whole child to accomplish even intellectual objectives.

The total competence of children is made up by different details of pattern. Building on these differences within the individual is an important aspect of curriculum planning, method, and guidance.

Growth is an individual matter and must be appraised from the point of view of the nature of the individual. There can be no common expectancy for achievement when it is conditioned by sex differences, the total maturity of the child, and the family from which he comes.

It is reassuring that growth has stability and is not easily deflected by the efforts of others to alter it. The stability of growth has great survival value for the race and the individual.

Children as they present themselves in schools have more things in common when viewed broadly than when single attributes are studied in detail. Similarities as well as individual differences deserve attention in classrooms.

The imperative demands of the organism for growth cause children to seek from the environmental supply of nurture and this behavior offers teachers an important clue to the provision of environmental experiences and the use of effective techniques.

Where the data, generalizations, and philosophy of growth have become the common property of the professional staff and patrons, classroom practices and administrative policies in the treatment of individuals and groups tend to be less rigid, competitive, and frustrating, and more flexible, social, and satisfying.

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AILEEN SCHOEPPPE AND
ROBERT J. HAVIGHURST

A Validation of Developmental and Adjustment Hypotheses of Adolescence

The concept of "developmental tasks," originally proposed and elaborated by Professor Robert J. Havighurst, has entered into and affected large areas of educational thinking and practice. A knowledge of the demands that are placed on all members of the social subgroups from which a teacher's pupils come is obviously relevant to the way in which he organizes educational experiences and evaluates educational outcomes.

Among the developmental tasks suggested by Havighurst's analysis are several which relate particularly to the period of adolescence. The following study is an attempt to verify and clarify five of these adolescent tasks for a sample of adolescents in the American Midwest.

The student of education should be sensitive to the fact that any one set of developmental tasks arises from an analysis of a specific society or subgroup of society. Such tasks may be appropriate only to the pupils drawn from that group. It is entirely in keeping with the definition of developmental tasks that the student consider whether the five tasks involved here, and the relationships found among them, are applicable to the adolescents with whom he has contact.



THE PROBLEM

The concept of developmental tasks—those major common tasks which face all individuals in a given society or subgroup of

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society—is a useful tool for thinking about human development and about the education and guidance of children and youth. This concept seems to provide a framework within which knowledge about human behavior can be organized and this information can be used in learning optimum socialization processes. It has evolved from the recent efforts of students of the life sciences to understand social learning and the problems boys and girls face in becoming oriented to their cultural milieu. The developmental task concept originated in the Study of Adolescents of the Progressive Education Association, but was first elaborated in detail by Havighurst in 1948 in the monograph *Developmental Tasks and Education*.³ Since then it has been used rather widely. The most recent, thorough, and somewhat novel account is that by Tryon and Lilienthal in *Fostering Mental Health in Our Schools*.⁷ However, a complete survey of the literature shows it all to be theoretical.

The investigation herein reported was made in an attempt to learn more about the concept by studying intensively the achievement of thirty adolescents in Middle-western American society on five developmental tasks of adolescence; namely,

- 1) Learning an appropriate sex rôle.
- 2) Achieving emotional independence of parents and other adults.
- 3) Developing conscience, morality, and a set of values.
- 4) Getting along with age-mates.
- 5) Developing intellectual skills.

THE HYPOTHESES

The study tested several hypotheses about the relationships of levels of achievement on developmental tasks at various ages, and among several tasks at the same age. The aim was to answer the following specific questions: Does a tendency to be high in achievement in one task relate systematically to the level of achievement in other tasks at the same age? What are the patterns of achievement? Is there a systematic relation among the levels of achievement on the tasks at various periods of adolescence? If so, what is the nature of this relationship?

A concern for finding answers to the above-stated questions led to the formulation of definite hypotheses which, when tested, would yield the desired information:

1) Good achievement on a developmental task at one age is followed by good achievement on similar tasks at subsequent ages.

2) Good achievement on a developmental task tends to be associated with good achievement on other tasks at the same age.

3) In a minority of cases good achievement on one developmental task may be used to compensate for poor achievement on other tasks.

As the study progressed, additional questions were raised. Chief among these were questions relative to the overlapping or discreteness of tasks. Specifically, are there basic underlying factors which may account for achievement in certain of the tasks and other basic factors which may account for achievement in other tasks? Does the 'clustering' of tasks influence achievement on them?

THE DATA

As a part of the Midwest Community Study Research Project, a major interdisciplinary research carried on since 1942 by the staff of the Committee on Human Development of the University of Chicago for the purpose of investigating character and personality development during childhood and adolescence in a typical Midwestern community, rich and extensive data have been collected on a group of adolescents. These lent themselves to the purposes of the study and form the basic data for it.*

The subjects are fifteen boys and fifteen girls studied intensively in the Project. They are a selected sample, originally chosen on the basis of being 'adjusted' or 'unadjusted' as defined by arbitrarily determined composite criteria, from the original sample, which consisted of the one hundred fifteen children who had been born in 1932 and who in 1942 resided in the small city of 'Midwest' or its surrounding rural territory. The data used in the present study were compiled at ages ten, thirteen, and sixteen.

* Without this previous work the present study could not have been possible; appreciation is expressed to all who worked on gathering and interpreting the primary data for the Midwest Community Study.

The completed folder of case-study materials on each subject, representing the results of thirty-two instruments, included information in the following broad areas: interviews; psychometric data; subject's reports via check lists; subject's reports via free response; various ratings by acquaintances, teachers, and others; projective techniques; sociometric data; physical data; Clinical Conference and Moral Character Conference* summaries and reports; ratings by staff members on a 'Trait Rating List' of forty-seven personality and social rôle items at age sixteen.

On the basis of these data eight or more Research staff members rated each subject on a ten-point scale on four developmental tasks; this scale represented a comparison by the rater of the subject against the Conference estimate of the norm for the American adolescent population with definitions set to place this norm at 5.5. At age sixteen separate ratings were made on the inner and outer aspects (i.e., covert and overt behavioral manifestations) of learning an appropriate sex rôle and assuming emotional independence of parents and other adults on the premise that these aspects were somewhat independent and might be discrepant, and that the data were sufficient to permit separate ratings of them at this age. Ratings were also estimated from the accumulated data on these recurrent tasks at the earlier ages of ten and thirteen.† All of his ratings on a task were averaged for each subject.

In addition, it was thought other available data on the subjects permitted rating on a fifth task, 'Achieving intellectual skills.' In actuality, in the light of the data, this task would probably be more correctly termed 'Achieving academic skills,' for the two measures determining the ratings are measures of academic achievement only and, at least in our present society, 'intellectual skills' is a much

* The Clinical Case Conference studied the group from 1945 to 1947; it was followed by the Moral Character Conference. Both are part of the large Project and the latter integrated all the earlier data and their interpretation by the earlier Conference into its research.

† It is recognized that ratings for earlier ages probably would have been somewhat more refined had they been made at those ages rather than attempting to arrive at ratings for those ages simultaneously with ratings for age sixteen, but practical considerations in the Project made such great precision impossible. It is also recognized that it would have been highly desirable to have had such ratings of inner and outer aspects for all ages as were made for age sixteen, but the Research staff thought the data from which to rate adequately on inner feelings were insufficient at earlier ages to warrant a separate rating.

more inclusive term and may have a connotation quite different from a narrow academic one. These ratings were not made by the Research staff, but were determined by decile rankings, made in terms of the entire original sample, on academic measures. For the school years ending in 1943 and 1946, this rating was made as follows: a numerical value was given to the average letter grade in each subject for the year, these numerical values were averaged, and the total scores of the entire sample ranked; this rank was then added to the individual's rank for the Metropolitan Achievement Test to give the total rank of the individual for the year; the total group for each year was then divided into deciles. For 1949 only school marks were available and these were in percentage form, rather than the letter grades of previous years; intellectual achievement for this year was rated by ranking these scores, then dividing the total group into deciles. † It is assumed these decile ratings thus determined are equivalent, for purposes of the present study, to the ratings on the other tasks on the ten-point rating scale.

The ratings on the five developmental tasks, thus obtained, furnish the sole data for the correlational analyses to test the adjustment and development hypotheses.

METHODS OF ANALYZING DATA

To test the hypothesis of consistency of development, intercorrelations of ratings for all subjects on a task at each of the three age levels with each other age level were made to determine similarity of level of achievement of the task; this was repeated for all tasks.

To test the hypothesis of adjustment by considering simultaneous achievement on the several tasks, the ratings of subjects at each age level on all the tasks were intercorrelated to determine the degree of relationship between levels of achievement on the various tasks at given ages.

To check further on an adjustment hypothesis and the possibility of basic factors underlying certain tasks, intercorrelations were made of each task at all age levels with every other task at all

† The correlations between ranks for the total group were made by Spearman's rank-difference correlation formula and the critical ratio for significance determined. For 1943 data C.R. = 6.8; for 1946 data C.R. = 9.1. Thus there is a significant relationship between rank in the achievement test scores and rank in the school grades.

age levels and these were organized by correlation profile analysis. In the same figure the profiles of congruent tasks at the same age were plotted. An attempt was then made by inference to determine an underlying factor which might be the causality for these task groupings.

To check on the hypothesis that good achievement on one task may be used to compensate for poor achievement on another or other tasks, rankings of levels of achievement were made for all individuals on all tasks at all ages. Those subjects who appeared simultaneously in the top quarter on one or more tasks and in the lowest quarter on one or more tasks were studied for a comparison of ratings, and an attempt was made to determine reasons for these discrepancies.

SUMMARY OF THE FINDINGS

Before considering relationships, it seems requisite to describe the central tendencies and dispersions of the group on the tasks at the various ages. Table I * contains these data.

From this table it can be observed that the group consistently averaged near the theoretical mean (5.5) for the American adolescent population, as designated by the Conference definitions. Thus, the group as a whole can be said to be, within the limits of the rationale of the study, quite average in their achievement on the developmental tasks rated, and the ranges indicate that the study includes cases from one extreme on the rating scale to the other extreme. Because of these wide ranges, opportunity is presented for studying all levels of achievement and for pointing up sharp contrasts.

Table II presents the basic correlational data which permit testing of the first two hypotheses and of the possibility of basic factors underlying certain tasks.

DEVELOPMENTAL RELATIONSHIPS

The longitudinal study of relatedness of each task through the three age levels shows the hypothesis that good achievement on a

* [Table omitted]

TABLE II

INTERCORRELATIONS OF RATINGS ON EACH TASK AT EACH AGE LEVEL WITH EACH OTHER TASK AT ALL AGE LEVELS *

| | SRO | SRO | SRO | SRI | EIO | EIO | EIO | EII | CMV | CMV | CMV | A-M | A-M | A-M | IS | IS | IS |
|-----|-----|-----|------|-------|-----|-----|-----|------|-------|-------|-------|-------|------|------|-------|-------|-------|
| | 10 | 13 | 16 | 16 | 10 | 13 | 16 | 16 | 10 | 13 | 16 | 10 | 13 | 16 | 10 | 13 | 16 |
| SRO | ... | .61 | .42* | (.94) | .68 | .48 | .50 | .43* | .70 | .44* | .42* | .83 | .57 | .49 | .45* | .42* | .37* |
| SRO | ... | ... | .84 | .59 | .62 | .83 | .84 | .86 | .38* | .53 | .52 | .53 | .82 | .77 | .54 | .49 | .46* |
| SRO | ... | ... | ... | .70 | .58 | .71 | .79 | .75 | .39* | .55 | .53 | .38* | .66 | .73 | .45* | .45* | .42* |
| SRI | ... | ... | ... | ... | .47 | .76 | .58 | .68 | .40* | .51 | .49 | (.28) | .44* | .48 | (.34) | (.26) | (.18) |
| EIO | ... | ... | ... | ... | ... | .83 | .79 | .69 | .43* | (.23) | (.22) | .57 | .47 | .39* | .37* | (.29) | (.23) |
| EIO | ... | ... | ... | ... | ... | ... | .95 | .84 | (.26) | .38* | .37* | .45* | .64 | .57 | .51 | .45* | .48 |
| EIO | ... | ... | ... | ... | ... | ... | ... | .93 | (.35) | .50 | .51 | .51 | .65 | .63 | (.30) | .55 | .49 |
| EII | ... | ... | ... | ... | ... | ... | ... | ... | .47 | .63 | .65 | .43* | .63 | .64 | .66 | .62 | .55 |

[illegible]

* An asterisk following a coefficient of correlation denotes it is significant only at .05 level; coefficients not so marked are significant at .01 level. A coefficient enclosed in parentheses indicates it is not significant at either .01 or .05 level. With 28 degrees of freedom an r to be significant at .01 level must be .463 or greater; at .05 level .361 or greater.

developmental task at one age is followed by good achievement on similar tasks at later ages to be correct. In fact, all correlations except one are significant at the .01 level and that one—Sex Rôle (Outer) Task at ages ten, sixteen—is significant at the .05 level, that level of significance assumed as satisfactory for the study.

The one very clear-cut finding from the longitudinal study is the much greater variability among the tasks and the lower correlations for ages ten, thirteen than for ages thirteen, sixteen. The very high correlations at ages thirteen, sixteen show quite conclusively that the level of achievement on these particular tasks is practically fixed by age thirteen. Therefore, the period from ten to thirteen years seems the crucial period for adolescent changes and development in personality and socialization patterns in these subjects. A rather commonly accepted generality is that with puberty and physiological changes comes other adolescent development, but, if these correlations are valid, it appears that other adolescent changes may well forerun the physiological changes. There is need to extend the study to other earlier and also more advanced age ranges. But the findings suggest rather forcefully that the so-called 'latency' period may be a latency period only in physiological development and that it is a critical, extremely important period in social and personality development. Recurrently throughout the literature on personality development are suggestions that the latency period needs to be studied much more intensively than it has been; certainly these correlations hint that it and the early adolescent years are the time when permanent patterns are being formed and socializing influences are most effective. Therefore it behooves those guiding children during this formative period to have as much information as is possible on how the child may be aided in the accomplishment of the developmental tasks at this age period. An encouraging step in this direction is the very recent appearance of a new summary and critical analysis of available literature bearing upon the development and psychology of preadolescents, drawn from the various disciplines, with a formulation of guiding principles.²

Some other conclusions regarding development may also be made. The correlations between age levels for Sex Rôle (Outer) Task are lowest; plausibly, physiological factors over which the individual exercises little control enter importantly into this task.

The correlations between achievement of intellectual skills at

the various ages are highest; the factor of basic intellectual capacity, over which the individual also exercises little control, enters prominently, but makes for stability instead of fluctuation on the task.

An extremely high correlation (.98) shows great consistency in the Conscience, Morals, Values Task between ages thirteen and sixteen; the conscience and morality pattern one has established by age thirteen evidently remains virtually stable unless there are traumatic or other situational experiences.

ADJUSTMENT RELATIONSHIPS

Overall Adjustment

The hypothesis that good achievement on one task tends to be associated with good achievement on other tasks at the same age appears to be correct. Table III presents a summary tabulation of the

TABLE III
SUMMARY TABLE OF CORRELATIONS OF TASKS AT VARIOUS AGES

| | Age | | |
|---|-----|-----|-----|
| | 10 | 13 | 16 |
| CORRELATIONS CONSISTENTLY HIGH FROM AGE TO AGE | | | |
| Sex Rôle (Outer) Task with Emotional Independence (Outer) Task..... | .68 | .83 | .79 |
| Sex Rôle (Outer) Task with Age-Mates Task..... | .83 | .82 | .73 |
| Emotional Independence (Outer) Task with Age-Mates Task..... | .57 | .61 | .63 |
| Conscience, Morals, Values Task with Age-Mates Task..... | .80 | .68 | .78 |
| Intellectual Skills Task with Age-Mates Task..... | .62 | .63 | .69 |
| CORRELATIONS CONSISTENTLY LOWER FROM AGE TO AGE | | | |
| Sex Rôle (Outer) Task with Intellectual Skills Task.. | .45 | .49 | .42 |
| Emotional Independence (Outer) Task with Conscience, Morals, Values Task..... | .43 | .38 | .51 |
| Emotional Independence (Outer) Task with Intellectual Skills Task..... | .37 | .45 | .49 |
| CORRELATIONS INCONSISTENT FROM AGE TO AGE | | | |
| Sex Rôle (Outer) Task with Conscience, Morals, Values Task | .70 | .53 | .53 |
| Conscience, Morals, Values Task with Intellectual Skills Task | .57 | .78 | .78 |

correlations between achievement on the tasks at each of the respective age levels.

The adjustment, and also the development, hypothesis is further substantiated by the fact that seventy per cent of the correlations at age ten, eighty per cent at age thirteen, and ninety per cent at age sixteen are significant at the .01 level. Allport has succinctly described this consistency of personality: "As if to offset the disunity that comes with differentiation in early childhood, there is a compensatory process of integration. . . . By virtue of the functional joining of psychical systems (through conditioning, generalization of habit, and all associational processes) integral units come into existence. For the most part these units represent coherent foci of development, found serviceable to adjustment and to mastery. . . . Functional units though to some extent independent tend, nevertheless, normally to converge into more embracing systems. Though perfect unity is never achieved, there may be said to be a constant progression in that direction." 1, pp. 844 f.

A clear-cut conclusion is that satisfactory relations with peers is bound to accomplishment of the other tasks.

Basic Factors

From the correlation profile analyses, based on intercorrelations of each task at all age levels with each other task at all age levels,* the tentative conclusion is drawn that there may be three separate basic factors underlying the tasks studied, although much more definite scientific investigation must be carried on before this can be stated with certainty. These findings are merely suggestive of the possibility of merit in a factor analysis of the tasks; such an analysis might do much to define, delineate, and delimit the specific tasks.

A factor which may be basic to the Sex Rôle (Outer) Task, Achieving Emotional Independence (Inner and Outer) Tasks, and Getting Along with Age-Mates Task has an affective base. These seem to center around the 'feeling' aspects of the individual—that part of his personality that, tragically, up to the present the schools have not generally deemed it their concern to develop. Physiological, emotional, and social maturity of the individual are all a con-

* The method duplicated that described by Tryon.⁶

sideration in this clustering, but the effect of each goes back to an emotional base and the individual's acceptance of his impulses.

A second factor which may underlie the Conscience, Morals, Values Task and the Intellectual Skills Task plausibly may be intellectual in origin. It suggests rational acceptance of discipline, or possibly a degree of conformity. This embodies intellectualizing by the individual and his acceptance of the necessity to formulate a pattern, a system of discipline, for his living both in informal interpersonal relations and in formal societal institutions.

A third factor seems basic only to the Sex Rôle (Inner) Task. About all one can definitely say from the data and the measures considered in the study is that this task does not fit with the others and therefore one deduces that it must have a different underlying factor. It is very tentatively suggested that this may have largely a biologic origin in hormonal balance. This hypothesis comes rather from using other studies to explain this discrepancy than from any data in the study. The isolation of this task corresponds with what Kinsey* seems to be concluding, and it is suggestive of Murphy's approach to personality study and his specific suggestion, with David Levy's study as evidence, that sexual and maternal drives suggest a constitutional factor (5, p. 106).

These are interesting data and may be valuable in suggesting approaches for further study to delineate in a more refined manner developmental tasks and to define them more precisely. But it must be reemphasized that this is only an exploratory study suggested by the correlations resulting from the study of longitudinal development and cross-sectional adjustment on the tasks empirically defined by the Moral Character Conference and that more careful and extensive analyses must be made before accepting these as basic factors. However, this exploration does suggest that such research may prove fruitful.

Negative Relationships

Tentative but positive conclusions were reached substantiating the third hypothesis—that some individuals use good achievement on one task to compensate for poor achievement on another or

* Both in *Sexual Behavior in the Human Male* and from ongoing research on females.

others. The small number of such cases (according to criteria, described previously, that were used for selection) makes any truly definite conclusions impossible but the trend suggests even a greater homogeneity in adjustment than anticipated. Only five of the thirty cases might be considered compensators, and only one subject appeared in both top and bottom quarters of achievement on tasks at all three age levels; thus compensation would seem to be for the most part and for most adolescents a temporary mechanism of adjustment to alleviate differences in physical maturation. It may be that compensation is used with expediency and forethought more often than hypothesized and is helpful in making a subsequent adjustment. Perhaps by the compensatory behavior the individual makes himself acceptable to himself during this particular period of development and, when the crisis has passed, tension is reduced and there is no further need to compensate in the same manner for the same reasons. However, this prognostication is wholly theoretical, may be invalid, or may be relevant only to periods of major physiological change such as adolescence. It is based primarily on empirical observation that rapid or retarded maturers physiologically often experience grave temporary maladjustments which time generally mollifies. The amount of compensation at stages of more stable bodily functioning should be studied for purposes of comparison and validation. However, the results do tend to indicate that achievement on one task at one particular age may be being used by an individual as a compensation for lack of achievement on another in order to make himself an acceptable self.

Finally, a study of the patterns of the five compensating cases shows that the patterns of negative relationships may be similar, but for the same or totally different reasons. Two girls, while varying in actual ratings, have precisely the same patterns and the causes for their patterns seem to be similar; they rate high on Sex Rôle (Inner) Task but low on Relations with Age-Mates and Emotional Independence (Inner). Do they do this because they know that sex is an area in which they can achieve and they perceive that this will be socially acceptable behavior for females in our culture? Conversely, the achievements of a boy and a girl compensator form identical patterns but stem from very different reasons. The girl compensates neurotically, needing intellectual achievement to justify her proud isolation from good peer relations and acceptance of her

sex rôle, while the boy seems to compensate because of immature development. These examples only serve to pose the question: what are patterns of compensation in our culture? They also serve to reiterate the need for studying individual cases and the dynamics of a particular situation.

SUMMARY

1) The results of this empirical study tend to show the hypotheses about adjustment and achievement implicit in the concept of developmental tasks to be correct. Some are so decisive as to leave little question; others suggest the need for further research to permit more definite conclusions.

2) The evidence seems clear-cut that the early period of adolescence is the crucial one in which changes in levels of accomplishment of these tasks are taking place, that levels of achievement are largely determined by age thirteen on these specific tasks.

3) Satisfactory relations with peers appear to be very closely linked to accomplishment of other tasks. Next in importance seems to be achievement of an appropriate sex rôle, and the findings indicate greater variability in achievement of this task at various adolescent age levels than variability in other tasks.

4) The analyses suggest the possibility of basic factors underlying the achievement of certain 'clusters' of tasks which may group or belong together because of these basic factors. Three such factors are very tentatively isolated.

5) Finally, the paucity of negative relationships serves to substantiate further the hypothesis of over-all adjustment and to suggest that compensation may be to a greater extent than predicted a studied, oft times commendable means of temporary adjustment.

The study has raised questions and suggested further investigations. Similar comparable verification studies to test hypotheses for achievement and adjustment at other ages would be desirable. The possibility that there may be basic factors underlying the accomplishment of certain tasks which seem to cluster together needs further study, probably by factorial analysis. Finally, a much larger group of compensators must be studied through time before any very valid conclusions regarding negative relationships may be reached.

Such studies should be fruitful in further defining the concept and giving it more specific meaning and perhaps wider application.

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ELEANOR E. MACCOBY, PATRICIA K. GIBBS, AND
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Methods of Child-Rearing in Two Social Classes

There are many empirical demonstrations of the relationship between the child's pattern of development and the child-rearing practices of his parents. The concept of social class, generally accepted among social scientists, suggested the further possibility that the members of any social stratum are much alike in their child-rearing practices and attitudes. This principle, now rather firmly established, is of strategic importance to education. If the general nature of the child-rearing practices of each socioeconomic level can be determined, teachers and administrators can make more intelligent assessment of local educational method and organization.

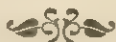
The following article reports some data from a recent and extensive investigation of "Identification in Young Children," conducted by the Laboratory of Human Development at Harvard University. The original study was planned and completed under the primary responsibility of Robert R. Sears, then Director of the Laboratory, Eleanor E. Maccoby, John W. M. Whiting, and Pauline S. Sears.

The findings presented here provide new information on the child-rearing practices in various social strata and, furthermore, raise serious questions about the validity of the widely known and influential conclusions reached by Davis and Havighurst (1) in an earlier study.

This article, in its original form, included several unfortunate errors in the text and in some of the table entries. Eleanor Maccoby kindly

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offered to make corrections for the purposes of this volume and the following version incorporates her revisions.



INTRODUCTION

We know that in the United States there are identifiable class groups which differ in many of their values, beliefs and practices. The ways in which these classes bring up their children are especially interesting. For, if we assume that many of the foundations of adult personality are laid in the experiences of early childhood, greater understanding of the differences in behavior of adults from different classes should come from knowing something about the differences and similarities in their early childhood training.

For the present study, 372 mothers were interviewed concerning their methods of raising their children. The interview, which employed a standard list of open-ended questions, took about two hours, on the average, and was mechanically recorded. The families were selected from two areas in the Greater Boston metropolitan area: one section was largely suburban-residential, the other was a working-class residential area adjoining a large industrial plant. As the first step in selecting a sample, public schools were chosen in neighborhoods which appeared to offer a wide range of social class groups. The kindergarten children (aged five to six) in these schools and their parents were taken as the original population for study. Families were then excluded from the target group if either of the child's parents was foreign born, if the child was not living with both natural parents, or if the child was a twin or suffered from some physical handicap. Interviews were obtained with 80% of the mothers in the families finally designated for study.

Each family in the sample was given a score on a scale of socioeconomic status (henceforth called SES). The scores were computed as follows: the occupation of the husband was rated on the Warner scale of occupational status (7), and this rating was given a weight of two; then a score for income (with a weight of one) was added, and the resulting scores were grouped into nine class intervals. The distribution of cases on this nine-point scale is as follows:

| <i>Socioeconomic Status</i> | <i>Number of Cases</i> |
|---------------------------------|----------------------------|
| 1 (high) | 39 |
| 2 | 59 |
| 3 | 49 |
| 4 | 51 |
| 5 | 43 |
| 6 | 25 |
| 7 | 57 |
| 8 | 26 |
| 9 (low) | 23 |

For the analysis which follows, the cases have been divided into two main groups: "upper-middle," which includes groups 1 through 4 on the SES scale (198 cases), and "upper-lower" which includes families with a score of 5 through 9 on the SES scale (174 cases). Our upper-middle group represents those occupational groups which are classed 1, 2, and 3 on the Warner scale of occupational status, and which Warner labels as upper-middle. Predominant in the group are professional and business families. The upper-lower group includes the occupational groups which would be classed 4 through 7 on the Warner occupational status scale, and are primarily blue-collar people (skilled and semi-skilled, with relatively few unskilled or service).

A problem in labeling the class groups concerns our group with an SES score of 5 (comparable to Warner's occupational group 4), whom he labels lower-middle. In our sample, this group includes such occupations as dance-band musician, low-income salesman, construction foreman, self-employed painter and decorator, manager of a small restaurant who helps with the cooking, etc. For the analysis which follows, this group has been classed with the upper-lower group, and makes up about one-fourth of the group. The upper-lower group, then, while it includes primarily blue-collar people whom Warner would class as upper-lower, also includes a group of lower-middle families. The entire group could reasonably be labeled a "common man" group (4), or a "working class" group.

INFANT FEEDING

There are few differences between the classes in infant feeding practices: upper-middle mothers breast feed slightly more often (not

significantly so); they begin weaning slightly later, but complete weaning earlier; and they schedule slightly more rigidly (not significantly so). Characteristically, both groups had only general time-schedules of feeding, which they would modify according to the demands of the infant, seldom waking the infant for a feeding or allowing him to cry very long from hunger. Neither group was characterized by abrupt weaning: both made the transition from sucking to drinking gradually, and applied only very moderate pressure on the child to give up sucking (Table 1).

TABLE 1
INFANT FEEDING, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Per cent who breast-fed child | 43% | 37% | — | |
| Median length of breast-feeding (for those breast-fed) | 2.4 mo. | 2.1 mo. | — | |
| Median age of beginning weaning* | 9.1 mo. | 8.2 mo. | 1.65 | |
| Median age at completion of weaning | 12.0 mo. | 12.6 mo. | | |
| Severity of weaning | 4.9 | 4.9 | — | |
| 1 = mild | | | | |
| 9 = severe | | | | |
| Scheduling of feeding | 5.1 | 4.6 | 1.62 | |
| 1 = complete self-demand | | | | |
| 9 = rigid schedule | | | | |

* Weaning is defined as a change from the sucking mode of taking food to the drinking and chewing modes. Thus, transition from the breast or bottle to the cup is considered weaning; transition from the breast to the bottle is not.

TOILET TRAINING

Toilet training is somewhat more severe among the lower group. There is somewhat more punishment and scolding for accidents, more "shaming," more worry on the part of the mother when the child is slow in learning sphincter control. Two mothers in the lower group rubbed their children's faces in their soiled diapers in an effort to teach them how "disgusting" accidents were. However, most

commonly, the upper-lower mother was only moderately severe: that is, she would spank occasionally for toilet accidents, or lose her temper if the child soiled himself after she had thought he was completely trained, but would be fairly gentle in the early stages of training (Table 2).

TABLE 2
TOILET TRAINING, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Median age of beginning bowel training | 9.6 mo. | 9.9 mo. | | <.01 |
| Median age of completing bowel training | 18.6 mo. | 16.4 mo. | 3.59 | |
| Severity of toilet training * | 3.8 | 4.6 | 4.05 | <.01 |
| 1 = mild | | | | |
| 9 = severe | | | | |

* This scale takes into account training for both bowel and bladder control.

SEX TRAINING

Clearly, sex training is much more severe in the lower group (Table 3). Following are excerpts from two interviews, illustrating the kind of material on which the above ratings were based.

The wife of a research chemist who has a college degree and earns \$7000 a year, said:

Interviewer: How do you feel about allowing Sue to run about without her clothes on?

Respondent: She has always been very free to run about with or without her clothes. As a tiny child she much preferred not wearing clothes, and I think that most small children feel that way and have no self-consciousness about it. As far as training about clothes are concerned, as far as our own feelings about it, we feel that children are children, and that they should be perfectly free.

I. What have you done about it when you have noticed her playing with herself?

R. Nothing has been done about that at all when we have noticed anything of that kind, but with her there hasn't been very much obvious play.

- I. How important do you feel it is to prevent this in a child?
 R. Well, I think that it isn't important. It's natural, and they'll get over it if you don't make an issue of it.
- I. How about sex play with other children—has this come up yet?
 R. No.
- I. What about children wanting to look at each other, or go to the toilet together, or giggling together—how do you feel about it when you notice this sort of thing going on among the children?
 R. Well, the children go to the toilet together quite freely. When she has visitors or whatever, they go to the toilet together and that's just treated naturally.

TABLE 3
SEX TRAINING, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Lower Upper</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Nudity permissiveness 1 = not at all permissive 9 = completely permissive | 5.5 | 3.3 | 7.57 | <.01 |
| Amount of pressure for modesty 1 = no pressure 8 = a great deal of pressure | 2.8 | 4.0 | 5.4 | <.01 |
| Age of beginning modesty training | 3 yrs. | 2½ yrs. | 2.58 | <.01 |
| Masturbation permissiveness 1 = not at all permissive 9 = completely permissive | 4.6 | 3.1 | 6.6 | <.01 |
| Severity of pressure against masturbation 1 = no pressure 8 = a great deal of pressure | 3.8 | 4.6 | 4.16 | <.01 |
| Permissiveness: sex play among children 1 = not at all permissive 9 = completely permissive | 4.3 | 2.9 | 6.74 | <.01 |
| Severity of pressure against sex play with other children 1 = no pressure 8 = severe pressure | 3.6 | 4.7 | 4.27 | <.01 |

In contrast are the remarks of the wife of a policeman (the family income is \$3500 a year):

- R. I don't think it is a good policy to bring things to their mind, to enlighten them on things until they first bring the subject up themselves.

I have taught her that she shouldn't undress in front of her brother. She does have a habit at night of putting on her pajama top and then she will wait and go into the bathroom with just her panties. I, of course, in turn corrected her and told her it would be polite to put on her bottom to the pajamas before she went to the bathroom. She did say to me that she was covered up, but then she put on her pajamas fully and then went out.

I. When did you start teaching her this?

R. When she was old enough to know, I would say. She knows that she can't ever take any clothing off outdoors or anything like that. Even her shoes.

I. What have you done about it when you have noticed her playing with herself?

R. I never have.

I. How important do you feel it is to prevent this in a child?

R. I think it is **very important to prevent it**. I really do. Actually, as to how I would cope with it, I really don't know. I ran into difficulty with my niece here, who is the same age. I just took her aside and talked to her. I explained to her that it wasn't nice to do, and if Aunt Janet ever saw her doing it again, she would have to punish her. As far as my little girl, I haven't seen it.

I. How about sex play with other children—has this come up yet?

R. No. Never. It has happened in the neighborhood, I know, but not as far as I am concerned. And I hope it never does. My heart would be broke.

I. What about children wanting to look at each other, or go to the toilet together, or giggling together—how do you feel about it when you notice this sort of thing going on among the children?

R. I never have noticed it.

I. Would you allow this, or do you think you would step in?

R. I would stop it immediately. I don't think it is good at all.

A fairly large number of incidents of sex play among neighborhood children were reported and described by the mothers; among the upper-lower mothers, the reaction was generally one of shock and shame, and the children were punished. Upper-middle mothers discouraged the more active forms of sex behavior, but more often by separating the children or admonishing them than by punishment, and they seemed to react with less emotional intensity.

In the interview, the mothers were not asked how frequently their children masturbated, but a conjecture based on the mothers' free comments would be that the lower mothers would be less likely

to report that their children masturbated, because their higher level of sex anxiety would prevent their seeing (or believing) this behavior in their children.

AGGRESSION CONTROL

The upper-middle mothers allow (and even encourage) at least as much aggression among neighborhood children as do the upper-lower mothers. Aggression toward parents is fairly strictly controlled in both groups, but upper-middle mothers overlook it somewhat more often than the upper-lower mothers (Table 4).

TABLE 4
TRAINING FOR AGGRESSION CONTROL, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|---|-------------------------|------------------------|----------|----------|
| Permissiveness: aggression toward other children | 5.1 | 4.6 | 2.46 | <.02 |
| 1 = not at all permissive | | | | |
| 9 = completely permissive | | | | |
| How much parent encouraged child to fight back if attacked | 4.2 | 4.3 | — | |
| 1 = never | | | | |
| 8 = strongly encouraged | | | | |
| Permissiveness: aggression toward siblings | 4.7 | 4.5 | — | |
| 1 = not at all permissive | | | | |
| 9 = completely permissive | | | | |
| Permissiveness: aggression toward parents | 3.6 | 2.8 | 3.84 | <.01 |
| 1 = not at all permissive | | | | |
| 9 = completely permissive | | | | |
| Severity of punishment for aggression toward parents | 5.3 | 5.8 | 3.47 | <.01 |
| 1 = no punishment | | | | |
| 8 = severe punishment | | | | |

The wife of a day laborer (income \$2500) expresses the following attitude toward aggressive behavior in her small son:

- I. How about when Jim is playing with one of the other children in the neighborhood and there's a quarrel or a fight. How do you handle this?

- R. Well I generally go out and ask them what happened. As a rule he will tell me the truth, and if he started it, he will tell me, and then I'll say, "Well, you hit him first, he should hit you back. If you don't hit him, he won't hit you." We'll talk it out, I will sit down and talk to him but then if I find he's keeping it up, then he comes in the house here until he cools down, until he can act like himself again, behave like himself, like he should.
- I. Some people feel it is very important for a child to learn not to fight with other children, and other people feel there are times when a child has to learn to fight. How do you feel about this?
- R. Well, I don't want him to run from anybody. Course it's always the two big ones around here that pick on the small ones, and it's hard for a small one to go fight with a big one. With the kids his age, and I know he can't hurt them too badly, no, I'll send him out, I'll tell him, "You've got to learn," and he'll go out.
- I. So you encourage him to fight back?
- R. To a certain extent. If they keep it clean—when it comes to kicking and biting, I don't like it.
- I. What do you tell him?
- R. He knows he's not supposed to fight and kicking, he knows it can hurt—they can hurt themselves if they kick sometimes in the wrong place where they don't mean to but it happens. And his father has taught him that he has two good hands, use them, and you don't have to bite. That's the only thing that gets me mad, when he comes home with teeth marks on him and their mothers don't think nothing of it—their children are angels. I don't mind them fighting if they play clean.
- I. Sometimes a child will get angry at his parents and hit them or kick them or shout angry things at them. How much of this sort of thing do you think parents ought to allow in a child of Jimmy's age?
- R. They shouldn't allow it. The first time they strike back they should be told right then and there, because sometimes no matter how young a child is if he's old enough to raise his hand he's old enough to be taught right.
- I. How do you handle it if Jim acts like this—could you give me an example?
- R. Jimmy has never kicked me—he's offered to hit me, but I just told him, I said: look, now, I'm a little bit bigger than you are and my hands are a little bit larger, and you can get a worse bruise out of it than I could, I can hurt more than you can, and if you don't want to get hurt, don't you hurt me. He'll try it, he'll take a little step closer, but then he looks at my hand and he looks at his hand, he just don't see no use in it. You can reason with him, he's an easy kid to reason with. I guess you call it

judgment because he can judge from his hand to my hand that he would get a worse beating out of it than I would.

A doctor's wife on the other hand, expressed a somewhat more permissive attitude about aggression toward parents:

R. Well he does that—since going to school, he's learned that also. I pay no attention to it unless he really kicked me in the shin or something I would, but if he says things to me, I just pretend I don't hear them, I don't pay any attention to him. That's just what I tell my little girl, because she answers him back. I say, "Pay no attention to him"—just ignore it, unless he actually starts hitting you or something.

I. Has he ever hit at you or kicked at you?

R. Oh, yes, he's hit me.

I. What have you done about it?

R. I just try to push him away and tell him that it hurts and I don't like it—that's all.

RESTRICTIONS AND ACHIEVEMENT DEMANDS

The upper-middle mothers seem to impose fewer restrictions and demands upon their five-year-olds than do the upper-lower mothers. Messiness at the table is somewhat less often permitted for the upper-lower children, and these children are subject to more stringent requirements about such things as hanging up their clothes, keeping their feet off the furniture, and being quiet around the house. Few mothers in either group give their children regular jobs to do around the house—they do not, in general, require the children to help with dishes, make beds, set the table, or take care of younger children. The most common type of task assigned is that of keeping the child's own toys and clothes picked up, and of helping to empty waste baskets or ash trays, but these tasks are not assigned on a regular basis or enforced strictly for either class group.

The upper-middle children are allowed somewhat more freedom to cross streets or go several houses away to visit other children, and the mother is less likely to check constantly on their whereabouts.

The findings in connection with demands for school achievement are complex: although the upper-middle families take it for

granted that their children will go to college, they do not seem to be so concerned about current school achievement as the lower families are. Possibly, the upper-middle children adjust to school more easily; for the lower families, current school performance may be more of a problem, and more parental pressure may be required to keep the child performing up to even an average standard. In any case, our data do not show any tendency for the lower parents to de-value school achievement—on the contrary, they seem emphatically interested in having their children do well in school (Table 5).

TABLE 5
RESTRICTIONS AND ACHIEVEMENT DEMANDS, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|---|-------------------------|------------------------|----------|----------|
| Must child stay at table throughout meal? (restriction) | 3.4 | 3.5 | — | |
| 1 = no restrictions | | | | |
| 8 = high restrictions | | | | |
| Amount of restriction of use of fingers at table | 4.6 | 5.1 | 3.11 | <.01 |
| 1 = no restrictions | | | | |
| 9 = high restrictions | | | | |
| Amount of restriction: interrupting adult conversation | 4.4 | 4.6 | — | |
| 1 = no restrictions | | | | |
| 9 = high restrictions | | | | |
| Pressure for conformity with table standards and restrictions | 4.7 | 5.2 | 3.23 | <.01 |
| 1 = no pressure | | | | |
| 9 = high pressure | | | | |
| Restrictions: care of house and furniture | 6.3 | 6.6 | 2.16 | <.05 |
| 1 = few restrictions | | | | |
| 9 = many restrictions | | | | |
| Pressure: neatness and orderliness | 5.5 | 5.9 | 2.93 | <.01 |
| 1 = no pressure | | | | |
| 9 = high pressure | | | | |
| Strictness about bedtime | 5.4 | 5.5 | — | |
| 1 = not at all strict | | | | |
| 9 = very strict | | | | |
| Strictness about noise | 4.5 | 4.9 | 2.29 | <.05 |
| 1 = not at all strict | | | | |
| 9 = very-strict | | | | |

TABLE 5—Continued

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Sex role differentiation: (mother's expectation for child to be "masculine" or "feminine") | 5.0 | 5.4 | 1.66 | |
| 1 = no differentiation | | | | |
| 9 = high differentiation | | | | |
| Restrictions: physical mobility (How far away from the house may the child go alone?) | 4.5 | 4.8 | 1.88 | |
| 1 = no restrictions | | | | |
| 9 = high restrictions | | | | |
| Giving child regular jobs | 3.9 | 3.8 | — | |
| 1 = no jobs given | | | | |
| 9 = many regular jobs given | | | | |
| Keeping track of child | 4.3 | 4.8 | 2.37 | <.05 |
| 1 = rarely checks | | | | |
| 9 = constantly checks | | | | |
| Extent of demand for instant obedience | 5.0 | 5.0 | — | |
| 1 = no demands for obedience | | | | |
| 9 = child must obey instantly | | | | |
| How far is child expected to go in school | 6.4 * | 4.3 * | 11.4 | <.01 |
| 1 = grade school | | | | |
| 9 = graduate school | | | | |
| How important is it for child to do well in school | 5.1 | 5.9 | 3.4 | <.01 |
| 1 = unimportant | | | | |
| 9 = very important | | | | |

* A score of 6.4 on this scale means that the mother says she expects the child to go through college, and states no reservations about it. A score of 4.3 means that she feels he certainly should finish high school, and may go to college if he wants to badly or if he shows unusual abilities.

TECHNIQUES OF DISCIPLINE

It is evident that the upper-lower mothers more often use the "negative" techniques of discipline: physical punishment, ridicule, deprivation of privileges. They are slightly (but not significantly)

less likely to use praise and reasoning. The comparison between classes on the use of withdrawal of love is unclear. The raters made an over-all rating from each interview on the frequency of use of this technique, but in almost half the cases, there was insufficient information in the interview to permit making a rating. Where the rating could be made, it was based upon such remarks as, "I tell my children they have to call me Mrs. Jackson when they are naughty: only good children can call me mother," or "When he does that, I just look at him coldly," or "I was disgusted with her, and I just locked her out of the house and told her she couldn't come in and whine around me." A low score on withdrawal of love would be based upon such remarks as, "Even when he's naughty and I have to punish him, I try to show him that I still love him." In the cases where the rating could be made, there was a tendency (not significant) for the upper-lower mothers to use withdrawal of love more often (Table 6).

TABLE 6
TECHNIQUES OF DISCIPLINE, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|---|-------------------------|------------------------|----------|----------|
| If no trouble at table, what does mother do? 1 = always praise 8 = never praise | 3.9 | 4.4 | 2.04 | <.05 |
| If children play well together, what does mother do? 1 = always praise 8 = never praise | 4.0 | 4.3 | 1.33 | |
| Frequency of use of isolation 1 = never used 9 = very often used | 5.7 | 5.5 | — | |
| Extent of use of withdrawal of love (rating) 1 = never used 9 = very often used | 4.1 | 4.5 | 1.64 | |
| Proportion of scolding statements involving withdrawal of love* 1 = low proportion 9 = high proportion | 6.4 | 6.0 | 4.5 | <.01 |

* The mother was asked to fill out a checklist of possible remarks which could be made in scolding a child, indicating which of the remarks she made often, occasionally, or never. Some of the statements were considered indicative

TABLE 6—Continued

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|---|-------------------------|------------------------|----------|----------|
| Extent of use of reasoning 1 = never used 9 = very often used | 5.0 | 4.8 | 1.22 | |
| Extent of use of reward 1 = never used 9 = regularly used | 4.6 | 4.9 | .89 | |
| Can child earn money? 1 = yes, regular earning system 9 = money not used as reward | 3.8 | 3.8 | — | |
| Extent of use of praise 1 = never used 9 = very often used | 4.8 | 4.8 | — | |
| Extent of use of ridicule 1 = never used 9 = very often used | 3.6 | 4.0 | 2.28 | <.05 |
| Extent of use of deprivation of privileges ^a 1 = never used 9 = very often used | 4.6 | 5.1 | 2.02 | <.05 |
| Extent of use of physical punishment 1 = never used 9 = very often used | 3.9 | 4.8 | 4.84 | <.01 |

of withdrawal of love, such as "Go away—I don't want to look at you until you can smile." Others were not so relevant to withdrawal of love, such as "That wasn't a very smart thing to do." Total scores were based on the number of withdrawal of love statements the mother used, minus the number of other types of statements she used.

On the other hand, the checklist score on withdrawal of love (see footnote, Table 6) revealed that the upper-middle mothers more often used remarks in their scolding which could be interpreted as withdrawal of love. Possibly, the interview rating took cognizance of more extreme and less subtle forms of the technique. In any case, our data do not permit us to say which class uses this technique more frequently or more severely.

AGENTS OF CHILD CARE AND DISCIPLINE

As might be expected, there are few differences between the classes in the identity of the person who has main responsibility for

child care: in both classes it is the mother. When the child is a baby, the father gives occasional help, and the upper-middle child is occasionally left with a sitter or a part-time maid, but all the caretaking done by agents other than the mother adds up to a very small amount in the average home. Of course, there are a few instances in which the child is regularly left with someone else while the mother works, but this is rare in our sample. When both parents are at home, there are some families where the father takes over the discipline of the children, others where he leaves it entirely to the mother, and still others where they share discipline (whichever one is involved or nearer the child handles any incidents which require discipline), but there is no difference between the classes in the tendency for one parent instead of the other to take over the disciplinary function. The policy decisions about child-rearing (such as whether the child is sick enough to be kept home from school, whether the child shall take music lessons, whether the child shall have chores to do, how far away from the house the child may go alone, etc.) are left mostly to the mother in both classes, although the husband is consulted on most major and some minor decisions. In both classes, the father is slightly stricter than the mother in terms of severity of discipline and his demands for obedience and self-restraint (Table 7).

AFFECTIVE ATMOSPHERE IN THE HOME

The upper-middle mothers are slightly more demonstrative toward their five-year-olds and seem to have a somewhat warmer relationship with them than the upper-lower mothers, although the majority of mothers in both classes are warm toward their children and display only minor elements of hostility toward them. There were a few cases in the sample where a clear pattern of rejection emerged and those which did occur were found primarily among the upper-lower families. Mothers in both classes seemed to accept the role of mother easily, and there was relatively little conflict between outside interests (including career interests) and the demands of the mother role—in both classes, other roles were subordinated to the mother role. Mothers in the upper-middle group were somewhat more pleased about the advent of a new child—possibly because, on the average, they waited longer to begin their families.

The relationships between the mother and father differ some-

TABLE 7
AGENTS OF CHILD CARE, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Amount of caretaking of infant by mother (proportional) | 5.2 | 5.5 | 1.66 | |
| 1 = practically none | | | | |
| 9 = all | | | | |
| Amount of caretaking of infant by father | 3.2 | 3.1 | — | |
| 1 = none | | | | |
| 8 = more than mother | | | | |
| Amount of caretaking of infant by other agent | 3.2 | 2.4 | 3.53 | <.01 |
| 1 = none | | | | |
| 8 = more than half | | | | |
| What other agents were there? | | | | |
| a) older sibling | 2% | 7% | | |
| b) maid, sitter | 58% | 12% | | |
| c) grandmother | 35% | 61% | | |
| d) other relative | 5% | 20% | | |
| | 100%* | 100%* | | |
| How much care does father give now? | 3.7 | 4.0 | 1.67 | |
| 1 = none | | | | |
| 9 = quite a bit | | | | |
| Who is disciplinarian? (When both parents are present) | 5.1 | 5.2 | — | |
| 1 = husband | | | | |
| 9 = wife | | | | |
| Responsibility for policy regarding children | 4.2 | 4.1 | — | |
| 1 = mother entirely responsible | | | | |
| 9 = father almost entirely | | | | |
| Who is stricter with child? | 4.6 | 4.3 | 1.51 | |
| 1 = father | | | | |
| 9 = mother | | | | |

* These percentages are based upon the cases where some other agent was involved in infant caretaking.

what along class lines: the upper-lower mothers are more critical of their husbands, and there is more open quarreling between the two parents in this group over child-rearing practices than among the upper-middle families. In both classes, the husbands are inclined to

believe that their wives are not strict enough with the children, while the wives tend to believe that their husbands are too strict (Table 8).

TABLE 8
AFFECTIVE ATMOSPHERE, BY SOCIAL CLASS

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|---|-------------------------|------------------------|----------|----------|
| Warmth of affectional bond (mother to infant) | 5.8 | 5.8 | — | |
| 1 = mother very cold | | | | |
| 9 = mother very warm | | | | |
| Amount of affectional demonstra- tiveness (mother to child) | 5.8 | 5.3 | 3.29 | <.01 |
| 1 = none | | | | |
| 9 = a great deal | | | | |
| How often mother finds time to play with child for mother's pleasure | 4.8 | 4.9 | — | |
| 1 = very often | | | | |
| 9 = practically never | | | | |
| Nature of affectional relationship (mother to five-year-old child) | 4.5 | 5.1 | 2.73 | <.01 |
| 1 = extremely warm | | | | |
| 9 = predominantly hostile | | | | |
| Nature of affectional relationship (father to child) | 4.0 | 4.5 | 2.02 | <.05 |
| 1 = extremely warm | | | | |
| 9 = predominantly hostile | | | | |
| Rejection by mother | 1.7 | 2.1 | 2.23 | <0.5 |
| 1 = no rejection | | | | |
| 9 = complete rejection | | | | |
| Mother's attitude toward mother role | 4.4 | 4.3 | — | |
| 1 = values it highly | | | | |
| 9 = subordinate to other roles | | | | |
| Mother's child-rearing anxiety | 3.4 | 3.2 | 1.05 | |
| 1 = no anxiety | | | | |
| 9 = extreme anxiety | | | | |
| How mother felt when found she was pregnant | 2.9 | 3.4 | 1.87 | |
| 1 = delighted | | | | |
| 9 = displeased | | | | |
| How father felt when found mother was pregnant | 2.5 | 2.7 | — | |
| 1 = delighted | | | | |
| 9 = displeased | | | | |

TABLE 8—Continued

| | <i>Upper Middle</i> | <i>Upper Lower</i> | <i>t</i> | <i>p</i> |
|--|-------------------------|------------------------|----------|----------|
| Mother's evaluation of father | 6.5 | 5.7 | 3.56 | <.01 |
| 1 = critical | | | | |
| 9 = admiring | | | | |
| Family authority | 4.4 | 4.8 | 2.33 | <.05 |
| 1 = mother complete authority | | | | |
| 9 = father complete authority | | | | |
| Wife thinks husband too strict or not strict enough? | 2.9 | 2.8 | — | |
| 1 = too strict | | | | |
| 5 = not strict enough | | | | |
| Husband thinks wife too strict or not strict enough? | 3.3 | 3.5 | 1.37 | |
| 1 = too strict | | | | |
| 5 = not strict enough | | | | |
| Extent of mother-father disagreement re child-rearing | 4.6 | 5.4 | 3.45 | <.01 |
| 1 = perfect agreement | | | | |
| 9 = complete disagreement | | | | |

EDUCATION, ETHNIC ORIGIN AND SOCIAL CLASS

The above findings reveal, in sum, a picture of greater warmth and permissiveness, and less severity in socialization, among the upper-middle families, with the more severe child training occurring among the lower group.

A legitimate reservation to accepting these findings at their face value might be the possibility that the upper-middle mothers were telling the interviewers not what they actually do but what they believe would be the "right" thing to say to the interviewer. The upper-lower mothers, one might argue, having had less exposure to modern child-rearing doctrine, would not know so well what was the "proper" answer to the questions, and would therefore be more frank.

Unfortunately, we did not ask mothers about how much modern child-rearing literature they had read. One indirect method for checking the above possibility is available, however: we may assume that the better-educated mothers have more access to modern doc-

trine, via reading and direct college training. If we compare upper-middle mothers at a given education level with upper-lower mothers at the same education level, then any differences between them ought to reflect more clearly the actual differences in class child-rearing practices, rather than their knowledge about what they *ought* to be doing, since knowledge has been held constant insofar as it is correlated with education.

Comparisons within and between education groups show that education makes very little difference in the severity of toilet training: at every education level, the upper-lower mothers are more severe in their training methods than the upper-middle mothers. Similarly, the amount of disagreement between mothers and fathers on child-rearing policy appears to be a function of class rather than education. And as might be expected, the amount of use of people outside the immediate family for infant caretaking is also a function of class rather than education: presumably, at any education level, it is only the upper-middle SES group who can afford maids and sitters.

Sex permissiveness is related independently to both class and education. Regardless of class level, the better educated the mother is the more permissive she is of sex behavior in her children. At the same time, at each education level, the upper-middle mothers are more permissive than the upper-lower mothers in this sphere, and significantly so. The same situation prevails with respect to the extent of use of physical punishment: education seems to reduce the use of this technique of discipline, but when mothers of similar education are compared, it appears that the upper-lower mothers use physical punishment more.

As far as permissiveness for aggression toward the parents is concerned, education and SES level interact in an interesting fashion: when a mother is in the upper-middle SES bracket, the better educated she is the more she is likely to allow her child some freedom to express aggression toward her. In the lower SES group, however, very little such aggression is permitted, regardless of the mother's education. We find therefore that if we compare upper-middle mothers who are well educated with upper-lower mothers who also have a relatively high level of education, the upper-middle mothers are more permissive of aggression; but at the lower education levels, there is no difference between the classes in this respect.

A similar situation prevails with respect to the amount of affectional demonstrativeness: among the well-educated mothers, the upper-middle group is more demonstrative, but at the lower education levels, there is no difference between upper-middle and upper-lower mothers.

Among the well-educated mothers, the amount of affection and respect felt for the husband seems to depend quite clearly upon class level: if a woman is well educated but her husband's occupation is low on the status scale, she does not think so well of him as when his occupation places him in the higher brackets; when the wife is not so well educated, her esteem for her husband does not seem to depend so clearly on how "successful" he is occupationally.

To sum up the findings with respect to class and education: when education is held constant, significant differences between classes are still found on the major scales for which sizeable differences were reported earlier. This fact provides some grounds for confidence that the class differences which have been discovered are not simply a result of the mothers' telling us what they believe we would like to hear.

Another problem in interpretation of the findings arises because of differences in the ethnic background of the families in the study. While our sample did not include any cases in which the parents of the five-year-olds being studied were foreign born, there was a large group in which one or more of the child's grandparents were foreign born. As might be expected, the ethnic origins of the families in the sample were related to their social class: the upper-lower group included most of the families of South European origin (Italian) and many of those from the British Empire. The upper-middle class, on the other hand, included most of the families of Eastern European (Jewish) origin, as well as the bulk of the group with no foreign-born grandparent. It is possible, therefore, that the class differences reported earlier simply reflect greater permissiveness in the East European cultural tradition, and stricter child-rearing among the Italian and British culture groups.

In order to test this possibility, differences in child training methods among the groups of different ethnic origin were examined. In most instances, there were no differences between ethnic groups in a direction which would produce the class differences which have been reported. And when differences between ethnic groups were

found, the social class differences were still found *within* the ethnic groups studied. It appears, then, that the differences in child-rearing practices between social classes which were reported earlier cannot be traced to differences in the ethnic origin of the two classes.

RELATIONSHIP BETWEEN THESE AND PREVIOUS FINDINGS

There are relatively few studies on child-rearing practices among different social classes. The major findings of a few such studies are summarized below.

1. Davis and Havighurst (1). This study reports interviews with 48 "middle class" and 52 "lower class" mothers. They report that middle class mothers wean and toilet-train their children earlier than lower class mothers, schedule infant feeding more rigidly, assign children household tasks (such as cooking and sewing) earlier, and control the children more closely (by not allowing them to go to the movies alone, for example). In general, Davis and Havighurst felt that their findings showed the lower class to be more permissive in their child-rearing practices than the middle class. See also Ericson (3) for a report and discussion of these findings.

2. E. M. Duvall (2). Duvall asked mothers in a wide range of social classes in Chicago to write down the "things that a good mother does" and the "things that a good child does." The lower class mothers more often revealed a "traditional" concept of child-rearing; that is, they believed that a good child is one who respects and obeys his parents, and that a good parent is one who keeps house well and takes care of the physical needs of the child. The middle class mothers, on the other hand, believed that a good mother is one who loves the child and guides him with understanding, while the good child is one who is happy and eager to learn, and who loves and confides in his parents.

3. E. H. Klatskin (6). In connection with the Rooming-In Project at Yale, 223 families filled in questionnaires about their child training methods. Klatskin found that the lower class were in general less permissive in their child-rearing than the middle class, and she found no differences between classes in the age of weaning or the scheduling of feeding, with the middle class beginning toilet training somewhat later than the lower class.

The findings of Kinsey, et al. (5), while not specifically directed at child training, provide some relevant information on social class differences: they find the lower class groups to be stricter in their insistence on modesty, and more opposed to masturbation, than upper-middle groups. Presumably, these mores would be reflected in child training.

As noted earlier, the present study shows the upper-middle class to be more permissive, and less severe in child training than the upper-lower class. These findings are consistent with all the findings listed above except those of Davis and Havighurst. Since the present study was done almost ten years later than the Davis and Havighurst study, it is possible that the differences in the two sets of findings reflect changes during this time: that the upper-middle class have become more permissive, while the upper-lower group have been undergoing little change in their child-rearing or have actually become more strict. This explanation does not seem very plausible, however, for several reasons. The mothers in the present study were asked whether they were more or less strict with their children than their own mothers had been with them. The upper-lower mothers reported the greatest difference between themselves and their own mothers: that is, they more often said they were more lenient than their own mothers had been, while the upper-middle mothers more often felt that they were following the child-rearing practices of their mothers, or were being even more strict. Furthermore, when we compare the older mothers in the sample with the younger ones, we do not find any tendency for the older mothers among the upper-middle class to be more strict, which should be the case if there has been a significant increase in permissiveness during the last ten years.

It is possible that Davis and Havighurst were dealing with a "lower" group who were farther down the economic scale than the "upper-lower" group described in the present study, and that severity of child-rearing characterizes the upper-lower and lower-middle segment of the class hierarchy, but not the truly "lower" segment. However, when we examine child-rearing practices at each step of our SES scale, we find that the relationships of class to child-rearing are in general linear, and that on scales which show the upper-lower group to be more severe, the very lowest groups in our sample (SES 8 and 9) are the most severe of all. This suggests that if our sample

of "lower" families had been confined to the lowest end of the SES scale, the differences between this group and the upper-middle group in child-rearing would have been even greater, in the direction of greater severity in the lower class.

The most plausible explanation for at least some of the differences between this study and that of Davis and Havighurst seems to be that somewhat different items were chosen for study, and that the findings have been interpreted differently. For example, Davis and Havighurst report that middle class children masturbate more often than lower class children, and they attribute this to the child's higher anxiety level which results from his more severe socialization. In the light of the current study, it would appear that an equally plausible explanation is that the middle class child feels more free to masturbate openly, since he is less severely punished for it, or that the mother is emotionally more able to see and report this behavior in her child. Similarly, the fact that lower class children were allowed to stay out later at night and go to the movies alone at an earlier age was cited by Davis and Havighurst as an example of the less restricted, less frustrating childhood of lower class children. Yet the current study finds that the lower class mother is less willing to be "bothered" by the child (expects that the child be quiet in the house, pick up his toys and clothes, be careful about damaging furniture, eat quietly and neatly, etc.), and it is possible that her willingness to have the child stay away from the house in the evening reflects a certain relief on the mother's part when the child is not present to interfere with housekeeping and other adult activities.

SUMMARY AND CONCLUSIONS

Interviews were conducted with 198 upper-middle class, and 174 upper-lower class mothers of kindergarten children. They were asked about their methods of bringing up their children: feeding, toilet training, sex training, and aggression training were discussed, as were the techniques of discipline the mother employed, the number and identity of the people involved in the child's early training, and the kinds of achievements the mother expected of the child and the nature of the restrictions imposed upon him. The major findings are as follows:

1. The classes do not differ significantly in their infant feeding practices: they are similar in age and severity of weaning, and in the proportion of mothers who breast-feed. The upper-middle class schedule infant feedings slightly more rigidly, but not significantly so.

2. The upper-lower mothers are more severe in their toilet training. The two classes are similar in the age at which they toilet-train their children, but the upper-lower mothers employ more punishment and scolding in connection with toilet accidents.

3. Upper-lower mothers are much more severe in sex training. They begin modesty training at an earlier age, and insist upon higher standards of modesty. The upper-middle mothers are likely to ignore masturbation and certain forms of sex play among the children, or seek to distract the child without making an issue; the upper-lower mothers tend to react with considerable emotion, and punish the child for such behavior.

4. Upper-middle parents allow their children more freedom to show aggression toward the parents than do the upper-lower parents.

5. Upper-lower parents employ physical punishment, deprivation of privileges, and ridicule as techniques of controlling their children more commonly than do upper-middle parents. It appears likely that the upper-middle parents use reasoning and praise more often, and possibly some forms of withdrawal of love, although these findings are not consistent.

6. Mothers in the upper-middle class are somewhat warmer and more demonstrative toward their young children than are upper-lower mothers.

7. The relationship between the husband and wife is characterized by more mutual respect and affection in the upper-middle class. Among the upper-lower mothers, there is more criticism of the husband, and the two parents disagree more about methods of bringing up their children.

8. There is no difference between the classes in the extent of involvement of the father in the rearing of children.

9. The tendency for the upper-middle mothers to be more permissive and less severe in their child training than the upper-lower mothers holds up when the mothers' education, age, or ethnic origin are held constant.

Taken together, the findings imply that the upper-middle class are more "permissive" than the upper-lower class in child-rearing. Both classes bring pressure to bear on the child to give up the direct expression of some of his "natural" impulses and to substitute more mature behavior for infantile behavior, but the upper-middle group

appear to be more tolerant of infantile behavior and to employ less severe punishment in the process of training.

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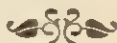
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LAWRENCE K. FRANK

The Fundamental Needs of the Child

What are the "fundamental" needs of the developing child? How can they be determined? How permissive should parents and teachers be toward the child's expression of these needs? Such questions are extremely difficult and largely unresolved, and the psychologist or educator who offers answers to them will receive both strongly negative and strongly supporting reactions. Any educator, however, necessarily *does* have a conception, explicit or implicit, of the definition and expression of basic needs, and it is important that he think it through carefully.

Lawrence K. Frank presents here a straightforward statement of what were his views on this matter at the time the article appeared—views currently held by a considerable number of educators, psychologists, and parents.



Every society and every generation uses children for its own purposes. It is significant that to-day we are beginning to speak of the needs of the child as entitled to consideration in his nurture and education or even as the controlling factor in child care. Contrast this emerging conception of the child's nature and needs with the practices all over the world, among so-called civilized people and so-called primitive people, in which the nurture and education of children are dictated by religious, ethical, and moral ideas, by political and economic requirements, by social class lines, indeed by an extraordinary variety of ideas and purposes all more or less remote from the child himself. The children in all these cultures

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are molded by the dominant ideas and beliefs and the group purposes into greater or less conformity in which they may sacrifice much or little.

Consider also the variety of practices in regard to the physical make-up or form of children. Among certain Indian tribes, the infant's head is flattened to a board. Among certain African tribes, the lips or ears may be stretched or the neck encased in coils of brass. Everyone is familiar with the ancient Chinese practice of binding the feet of female infants. As children grow older, many peoples have puberty rites involving tattooing, skin incisions, various forms of mutilation of the male and female genitals, and the inculcation of rigidly prescribed motor patterns of action that may involve anatomical deformities. The catalogue of practices that deform, distort, or otherwise manipulate the physical structure is endless, but all are regarded by those who use them as essentially necessary to make over the child into the image prescribed by the culture as the only right form for a man or a woman. In their cultural context these practices and beliefs may be purposeful and valid.

Not only is the physical structure of the child made over into the patterns of the culture, but so are the physiological functions, as we see in the diverse standards imposed upon the young child by different societies. In the matter of nutrition, for example, every group teaches the child to like the food of its traditional choice, which means developing an appetite for an incredible array of foodstuffs, or supposed foodstuffs, and abhorring other foodstuffs of equal or greater nutritive value. Many of these food choices represent a wise, economical use of available animal and vegetable resources, while others are obviously dictated by various beliefs in sympathetic magic, by rigid taboos, and by religious convictions that have little or no relation to the nutritional requirements of the growing child or even of the adult. Every society, again, imposes some kind of training upon children with respect to elimination. In some cultures the requirements are minimal, but in others they may be so severe and so rigorously imposed upon the very young child as to create lifelong impairment of physiological efficiency. Even breathing, in some cultures, is subject to special training, and sleeping patterns, peculiar to each group, are inculcated at an early age.

It is safe to say that most of these traditional patterns of child training and nurture derive from ideas and beliefs and strong convictions that have little or no relevance to the immediate needs of the child. Civilized man in many cases has survived *despite*, not because of, these methods of child care, as we are now beginning to realize in the light of recent investigation.

Curious as are these practices of physical and physiological training, the variety of practices in psychological training are even more astonishing, since here we find methods and procedures for bringing up children in the most fantastic, distorted patterns of conduct and feeling. The belief in using the child for social purposes is revealed here more convincingly than in the realm of physical care, where the organic limits of deformation impose some restraint; whereas in the area of conduct and belief there apparently are no limits to the grotesque, the cruel and brutal, the diabolical ingenuity of man in warping and twisting human nature to cultural patterns which originally may have been useful or even desirable, but which have become rigid and perverse.

When we reflect upon these various beliefs and practices that are imposed upon the child to make him conform to group-sanctioned patterns, we can begin to understand how extraordinarily significant it is to-day that we are discussing the needs of the child as a basis for his nurture and education. We can also see how questions of education and training become the focus of bitter conflicts, as contending factions in a society struggle to direct the nurture of children in order to control the group life. As we meet to-day to discuss programs of education for the young child in the home and in the nursery school, we are not concerned merely with questions of technique and procedures, with this or that pedagogical device; we are faced with the major issues of the future of our culture and the direction of our whole social, economic, and political life, since an effective program of early-childhood education based upon the needs of the child will inevitably change our society far more effectively than any legislation or other social action.

We must, therefore, be humble and deliberate in our discussion, not only because of the gravity of the larger social issues involved, but also because we know so little about the needs of the child. It is safe to say that whenever you hear any person or group speaking with strong convictions about specific needs of the child and how to

meet them, that person or group is probably sustained more by emotional fervor and loyalty to cultural traditions than by dependable knowledge of actual children.

Anyone who is prepared seriously and fairly to consider the question of the child's needs must begin by trying to be honest about his or her own personality bias and beliefs, emotional attitudes, religious loyalties, and social-economic and political leanings, because these often unconscious feelings and values play so large a rôle in our attitudes toward the child and in our willingness to recognize some of his needs or our strong denial of them. Probably the most general statement that we can make about the child's needs is that he should be protected from distortions, from unnecessary deprivations and exploitations by adults—parents, teachers and nurses, physicians, psychologists, and others engaged in dealing with children.

It is difficult to realize the extent of these often subtle coercions and pressures exerted upon the child. Before the infant is born, the parents may have built up a picture of the kind of child he or she is to be, with a pronounced bias toward the male or the female sex, or toward a certain kind of temperament, physique, and ability. The infant, having within him the genes of countless previous generations as well as the characteristics of his parents, enters into a family situation that even at birth may be threatening and out of harmony with his peculiar, idiosyncratic temperamental make-up and needs. Parents who are eager to minister to the infant's need for warmth, food, and safety may be doggedly determined to deny the child's sex and his many personal, temperamental characteristics, which give rise to needs as important and urgent as the need for physical care.

It is not without reason, therefore, that we stress this primary and inalienable need of the child to be accepted as a unique individual, or, if the parents cannot or will not accord that acceptance, the need to be protected and reinforced against the destructive, warping influence of these parental biases. Every child suffers to a greater or less extent from this denial of his own personal, temperamental individuality, because even the most emancipated parents are not wholly free from the desire to see their children conform to the images they have constructed. Moreover, every teacher has these partialities, often unconscious, which incline her

toward one child and away from another. Further, the child himself is subject to the strong desire to be like the parents, however out of harmony with his own make-up such an identification may be. It is interesting to see how the recognition of individual differences is resisted even by professionally trained persons, such as teachers, who will accept the fact of such differences with respect to mental capacity, as shown by standardized mental tests, but deny it with respect to personality, temperament, physical maturity, and other obvious characteristics.

The infant, as he grows into childhood and youth, faces a series of life tasks that cannot be evaded or denied. The way in which he meets those life tasks and his attempts to master them give rise to the various needs for which we to-day believe his nurture and education should provide. It is obvious that we have only a fragmentary knowledge of those needs, since we have studied so briefly the process of growth and development and the life tasks presented by our culture. But it is highly significant, as we suggested earlier, that we are genuinely concerned with understanding child growth and development and are trying to discover the child's needs, as a basis for his education and nurture.

The processes involved in living and growing create needs for warmth, nutrition, and bodily care concerning which we are gaining more knowledge and technical competence. Much of the research in the field of nutrition and its results are still in terms of uniform standardized rules based on pure-strain rat colonies, with no allowance made for individual differences in vitamin and mineral requirements, so that, in the name of scientific standards, we may create serious deficiencies in the individual child as contrasted with the standardized laboratory animal. Even rats in the same litter differ, as Streeter has recently shown, in their susceptibility to rickets. The nutritional and other physical needs of the individual child are to be viewed dynamically, not statically, in terms of continuing growth and development rather than fixed height-weight standards which are purely statistical averages. Moreover, these needs should be viewed in terms of physiological functioning, not merely of structural size and shape, since it is functional efficiency, not structure, that is important.

How many problem children, hypochondriacs, and psychoneurotics have been created by blind adherence to these stand-

ardized tables which physicians and nurses, health educators, and teachers have given to mothers as scientific laws and which mothers have then used on their children! Surely we should allow for individual differences in children and not increase parental anxiety in this area of physical needs by insisting upon these standardized height and weight tables for chronological-age groups. The child's need is for food, rest, sleep, and play, so that he will continue to grow and develop *at his own rate*. The emphasis should be upon the growing, not upon fixed dimensions for chronological ages based upon the assumption that all children grow at the same rate.

The same criticism may be made of other chronological-age standards, such as prescribed hours for sleeping, where again failure to make allowance for individual differences has created many distraught mothers and problem children. The sleep needs of children vary greatly, and the loss of a nap is often much less undesirable than conflict, rebellion, punishment, and other consequences of a rigid sleep regimen.

If we are to gain a better understanding of the child's needs in terms of the life tasks he faces, we should envisage the physiological processes involved in what we call socialization. First in order of impact upon the infant is the regularization of feeding, involving a fixed interval of three or four hours between food intake, to which the infant must adapt despite individual differences in the reduction of blood sugar that creates hunger and in the capacity to endure hunger. Prolonged hunger and crying, often while the mother keeps her eye on the clock to see when the precise minute for feeding arrives, create in the child a condition of tension that may in some cases initiate persistent personality difficulties.

✓ In feeding we are confronted with something more than just a need for nourishment. In early infancy, the whole body of the infant is receptive and in need of comforting, cuddling warmth and opportunity to suckle. In breast-feeding these needs may be adequately filled, through the warmth of the mother and the close tactual contact with her through nourishment and suckling, wherein the baby receives much of his needed sense of security and feeling of being protected. Tactual contacts and soothing are primitive, but highly necessary forms of reassurance. We never outgrow the need of them, but it is especially great in infancy and childhood.

In this respect the human infant is like the young of all mammals, who thrive when nursed and cuddled and derive much needed emotional security from the oral activity of sucking and the close contact with the mother.

By many students of personality, it is said that if the infant is given adequate breast-feeding and affectionate cuddling, his future attitude toward the world will be outgoing, generous, and trusting, whereas if he is denied these satisfactions, he will be suspicious, niggardly, and resentful. Dr. David Levy is quoted with approval by Dr. James S. Plant¹ as stating "that satisfactory breast-feeding [cuddling] experiences do more than whole dictionaries of later words in the establishment of security in the family group"—what Dr. Plant calls "belongingness." Since so many children nowadays are deprived of breast-feeding, it is necessary to consider the acceptance of that deprivation as a life task that is imposed upon the dependent infant, thereby creating specific needs which may persist throughout life. The seriousness of this deprivation could be diminished if the bottle-fed infant were held by the mother and cuddled while taking the bottle, so as to receive the warmth and security of her close presence during the feeding.

But even the breast-fed infant must sooner or later lose that happiness and comfort and face the process of weaning, which may create anxiety and irritability if too abruptly or roughly handled. During weaning the child needs additional reassurances and comforting to prevent acute feelings of insecurity and anxiety and to lessen the loss of sucking. Every deprivation is a threat to the child, a source of anxiety which can be mitigated by affectionate reassurance which makes him feel that the deprivation is not a punishment and that he is still loved. The important question for nursery schools to ask is what can they do for the children who have been deprived of breast-feeding or unwisely weaned, and who need to be reassured and protected, helped to outgrow their anxiety, and aided with affectionate reassurance.

Eliminations and their regularization present two more life tasks that may create persistent needs. In discussing and teaching toilet training, we are apt to forget what a profound physiological disturbance we are imposing on the child. The physiological proc-

¹ In *Personality and the Cultural Pattern*. New York: The Commonwealth Fund, 1937.

esses of elimination of urine and feces are marvelously well organized, so that automatically the sphincters of the bladder and the rectum respond to accumulated pressure within. This physiological autonomy the child is asked to surrender when toilet training begins. Instead of functioning in accordance with his physiological needs, he is asked to inhibit the sphincter response to pressure, responding instead to an external stimulus—vessel, place, and so on—presented by the adult. Furthermore, he is asked to respond at a fixed time, whether or not he needs to do so physiologically. In this training, the child is expected to subordinate his processes to outside events and times, giving up his own physiological autonomy, often months before he is sufficiently mature to make such an adjustment. Maturity does not mean chronological age or size or weight; it means that the child has had enough of an activity, such as sucking or unrestricted elimination, to be able to go on to something else without a persistent feeling of deprivation or an unsatisfied infantile longing.

The widespread prevalence of enuresis and of constipation are not unrelated to the way in which toilet training has been imposed upon children who find in this process a serious nervous and emotional strain. During toilet training the child needs constant reassurance and comforting to stand the anxiety he so often feels. When failure to be continent elicits scoldings and punishment, the emotional stresses are increased and reinforced by feelings of guilt and inadequacy, often expressed in various symptoms of misbehavior. Evidence of how precariously the little child is balanced during toilet training is seen in the relapses that follow any emotional shock or family disturbance, or in the appearance of misconduct suddenly in the midst of peaceful, engrossing play, when the child is made uneasy and restless by a full bladder of which he is not yet fully aware. The evident over-concern of parents and nurses with toilet training raises for nursery schools the question what they can do to provide reassurance for the anxious child, and to make toilet functions an unemotional subject and action. It is probable that some nursery schools themselves are guilty of aggravating the child's insecurity by their rigid overemphasis upon toilet training and the fuss made over "slips" or the teachers' unconscious reaction toward feces.

Here it is necessary to point out that the emotional tone or

Attitude of parents, nurses, and teachers toward toilet training is the important thing, not their actions, for the child reacts to the tone or attitude and feels the tenseness or overemphasis or dislike in the adult's voice and handling. The importance of the manner and tone of voice lies in the child's feeling that he is being deprived by this training. Any anger or impatience, then, may become an occasion for anxiety and feelings of guilt. How else is the child to understand and interpret the adult's treatment of him? Since many adults carry over from their own childhood a feeling of anxiety or disgust at feces, it is clear that they are not able to treat the child under their care without emotional stress when faced with this process, which for the child is entirely normal and unconnected with emotion until adult interference begins. Since few children pass through toilet training without some stress, we may include among the needs of the child the need for reassurance and often for release from the effects of this process upon the personality. It is appropriate to raise the question about toilet training: Are we concerned only with character training and the conformity it implies, or are we concerned with personality development and the kind of human being we are helping to foster? We can instill good habits or foster a personality; in the latter case, the habits will usually be established without difficulty. Weaning and toilet training, as often handled, are important sources of personality twists and biases, and may give rise to persistent needs in the child.

[The arrival of a younger child in the family also may create acute anxiety when the older child has not been prepared for it. The shock of waking up one morning to find the mother absent, to be told that she has gone to the hospital to have a baby, and then to have her return with an infant who engrosses her time and attention, is the unhappy fate of many children whose parents either ignore their need for preparation and reassurance or else deny it because they cannot face the questions about sex and procreation involved. So many children suffer unnecessarily from the arrival of a younger brother or sister when that arrival could be the occasion for happy expectations and enjoyment! Here we have an excellent illustration of how children are sacrificed to religious and moral traditions that insist upon denying sex and hiding procreation as something shameful and obscene.

The symptoms of sibling rivalry, often aggravated by overt favoritism for the new baby and rejection of the older child, are many and various. The young child is faced with the necessity of accepting a place and a rôle for which he needs much affection and reassurance, which he may not receive at home or at school. Often, this shock comes just as the child is striving to learn toilet habits, so that he is under a double load of anxiety which may lead to "slips" or persistent enuresis.

The frequency of rejected children—children not wanted or not acceptable as personalities or temperaments to the parents—is so great that special mention should be made of the need of such children for something to compensate for their unhappy fate. In this group must be numbered the children of oversolicitous mothers who are hiding their rejection of the child under an effusive care and atoning for their guilty feeling by "smothering" the child. Nursery schools have a great opportunity to meet the acute needs of these children.

The little child is frequently disturbed physiologically by emotional reactions such as anger, rage, and grief which clamor for expression or release in overt behavior. In a very real sense these physiological disturbances or upheavals seize control of the child and often impel him to act violently and destructively against things and people and even himself. One of the most important of life tasks for the young child is to learn how to manage these emotional reactions and thereby to free himself from this overwhelming experience. It is difficult for adults to conceive or to understand the panic that these emotional reactions may arouse in the child, who finds himself helplessly carried on a tide of feeling so strong that he cannot resist it unaided. If at the same time he meets with a violent response from adults, who strike him or forcibly restrain him, the emotional disturbance may be aggravated cumulatively until terminated by exhaustion. Such an experience teaches the child nothing constructive or helpful, and it may make him so afraid of himself that he begins to be anxious about this behavior and less and less prepared to meet the next provocation. Although the adult may forcibly control the child at the moment, what the child needs is help in controlling the emotional disturbance himself, so that, instead of a persistent conflict within the child between himself and his emotions, he can bring these emotional reactions

into the pattern of his own living. The situation is in many respects like that in the case of hunger and elimination, where physiological processes are initially dominant, but are gradually transformed into regulated functional activities over which the individual has, as we say, control, because those functional processes are subject to the culturally sanctioned times, places, and objects.

In other words, the emotional reactions of the child are normal physiological functions that call for regulation and patterning, so that the child may be freed from their urgency and disturbance. They are not, as our tradition teaches, moral or ethical problems, and when handled as such, they only increase the child's guilt and resentment and serve to fixate him at that infantile level, as in toilet training when it is made a moral issue. Anger and rage, like fear, have had a great biological value in the past, but in group living they may, as persistent infantile reactions, seriously interfere with the individual's capacity for peaceful, coöperative adult living, just as persistent incontinence of feces will restrict an individual's activities.

The child, then, needs help in bringing his emotional responsiveness under regulation. Some children are more prone to anger and rage, others to fear and pain, so that each child requires highly individualized help in meeting his peculiar personal reactions. Unfortunately we have little knowledge of how to provide this help in a constructive, rather than a repressive, manner, because we have treated the problems as moral issues, meeting them with threats, punishment, shame, and often equally violent emotional reactions. There is need for much experimentation here in terms of physiological processes that need to be regulated and integrated into the child's total personality make-up through the help we can give him in his handling of these internal upheavals.

Perhaps the greatest need in these situations is for sympathetic reassurance that will allay the child's panic and so help him to meet the situation more effectively. If not helped early in life, the child may go forward with a capacity for violent reaction that his increasing size and strength make potentially dangerous, especially since he may, at the same time, be developing an increasing resentment toward others because of the way frustrations and deprivations are being inflicted upon him—a resentment that may later take the form of a persistent hostility and aggression, repeatedly reinforced by the revival of the infantile emotional reactions.

Fear and grief are also difficult reactions for the child to handle, but again we usually fail to provide really constructive help and only too often aggravate these feelings by our clumsy or careless attempts to dissipate them. Both fear and grief are physiological reactions that more or less paralyze or restrict activity, unless the fear activates flight. The child needs reassurance and reinforcement in meeting the strange, unknown, and apparently threatening experiences that confront him, and if we will accept the child's view that a situation is terrifying, even if we see that it is not, we can avoid the usual mistakes. Nothing is so helpful as learning some effective method of dealing with a fear-producing situation, since a learned motor response displaces the panicky fear of helplessness, as we see in the training of firemen, policemen, soldiers, and others. But many of the fears of children are not really physiological fears, but rather a disguise for other needs which the child cannot or does not reveal. It is the insecure, anxious child, the child who is not sure of himself or his place in the family or group, who appears fearful of situations that have no terrifying character, so that our earnest explanations and reassurances of safety are wholly irrelevant. Then, too, many children are reared under a constant threat of danger, the parents instilling fear before the situation arises in their efforts to protect the child, or the environment itself may be constantly terrifying. Again, many children have suffered really shocking accidents or exposures to danger which have been indelibly impressed upon them, so that they are ever apprehensive of a repetition and live in dread. Children from such a background need a long experience of peace, of safety and security, to escape from the terror that dominates their lives. In some cases only repeated rehearsals of the shock will enable them to escape from their hysterical reactions.

In view of the frequency of fears in little children, fears that often persist throughout life and handicap the individual, we should recognize as of the utmost importance the child's need for help in dissipating them. But we must be alert to the difference between fears and the persistent anxieties that derive from ill treatment and neglect and that are exhibited as fears of specific situations only because the child must find occasional release.

Grief is another pervasive emotional response for which we have little adequate treatment. Children lose beloved parents, siblings, and nurses through death, divorce, or the inevitable changes

in relationship, and something happens to them that we can only guess at, for the child has no comforting philosophy or belief to assuage the acute sense of loss. He can then only mourn, as we see a dog mourn a beloved master, inaccessible to our proffered sympathy or reassurance, because what is missed is that idiomatic, personal relationship that can rarely be regained with another. Children who are well loved can often find in the non-verbal response of those they love some comfort, but if they have lost someone of value in their lives, that loss may never be forgotten. The facing of death or deprivation, the acceptance of the inevitable, is one of the life tasks which mankind has never found a satisfactory method of meeting. To-day children are increasingly obliged to face another kind of loss that is more perplexing and difficult than death—the separation or divorce of their parents, which is so hard to explain to the child and almost impossible to render innocuous. In meeting this situation the child has needs that we can scarcely understand, but we must try to provide some kind of helpful assistance, because the experience is so devastating to the young child and so persistently disturbing throughout childhood and especially adolescence. The conflict of parents, the frequent accusations and impugning of motives, all the bitterness and the competition for the child's favor, act as a psychological poison that, especially in the case of girls, may ruin the individual's capacity for adult mating, for one of the child's great needs is to build up images of the husband and wife, the father and mother, as guides to his or her own future rôle in marriage.

Another task of the child that is a source of anxiety, creating an acute need for reassurance and understanding help, is that of accepting his or her own sex and the many taboos that surround this subject. The traditional view of childhood is that children have no awareness of sex differences and no concern over their genitals, while the cumulative clinical evidence indicates that they are often greatly worried about sex differences and puzzled, if not greatly preoccupied, by their genitals. It is hard for a child to envisage the process of procreation, to accept his maleness or her femaleness, and to see any meaning or sense in the confusing "explanations" given, at the same time striving to understand the violent reactions of adults to exposure of the genitals, manipulation, and so forth.

Little children need constant reassurance and simplified enlightenment on questions of sex and procreation if they are to escape prolonged anxiety and possible lifelong unhappiness. In so far as nursery schools and other schools can provide children with an understanding and wholesome attitude here, we can see how the education of children may change our whole culture, for undoubtedly our culture is warped and distorted by our inherited traditions of uncleanness, obscenity, and wickedness in regard to sex. We cannot expect to dispose of the child's curiosity and concern by purely biological explanations, since, as Otto Rank has pointed out, adults themselves are not satisfied with merely biological answers. Moreover, the exigent questions about sex, for the child and the adult, are not concerned with gestation, but with the uses of sex in living, in feeling, in intimacy and affection.

It is not too much to say that the ability of men and women to marry and to find happiness in marriage and family life is largely conditioned by their experience and acceptance of their masculine or feminine rôles and sex differences during the pre-school years. If the boy is to grow up as a psychologically potent male, he must during the pre-school years develop his maleness and focus his future sex interests and needs in the genitals, since failure to do so at that time, as clinical evidence amply shows, will compromise his adolescence and prevent his achievement of a wholesome heterosexual adjustment toward women. Likewise it is clear that the little girl, during the pre-school years, must get a clear idea of her future feminine rôle, must accept her essential biological, physiological, and anatomic difference from the male and begin to look forward to her psychological differentiation as a female, with unique capacities for mating, procreation, lactation, and maternal and feminine rôles.

Children find these tasks, which should be simple, wholesome, and natural stages of pre-school development, matters of extraordinary difficulty and stress. Their parents, especially the mother, are so often suffering from anxiety, disgust, or fear about their own sex functions and needs that they cannot tolerate the child's natural curiosities and activities, nor can they permit the child's efforts to make these early life adjustments. Unfortunately many nursery-school teachers suffer from the same unfortunate conditioning, and so are unable to give the child the understanding and

help he or she needs. It is not going too far to say that in some nursery schools the difference between boys and girls is ignored or rigidly suppressed, with serious consequences for the personality of the children.

As we gain more insight into the process of personality development and realize how crucial these pre-school sex interests and adjustments are for the subsequent adult life, we can and must work out nursery-school procedures designed to help the child to meet these tasks with courage and happiness, free from the distortions and anxieties that are now so prevalent, able and ready to give and to receive affection.

Another life task confronting the child is that of learning to recognize and observe the inviolabilities that every culture establishes with respect to objects, persons, places, and times. We are so accustomed to think of private property in things and animals, of the sanctity of the physical person of individuals, of the great number of special places and days consecrated to particular purposes which must not be profaned, that we fail to realize that private property and the sanctity of the persons are not entities or mysterious powers, but learned ways of behaving toward things and persons, taught to children often with severe penalties for evasion or violation. These lessons as to the inviolability of things and persons are painfully learned by the young child as he begins to explore the world about him, seeking occasions for satisfying his needs and expressing his impulses, and being more or less forcibly restrained, rebuffed, and frustrated. He finds that everything and every person is protected by an invisible barrier of inviolability ("don't touch," "don't look," "don't eat," "don't go near," "don't handle") which he may not disregard except in duly sanctioned ways, such as buying and selling and making contracts or agreements. He must also learn to uphold the inviolability of his own person and property.

These lessons are not simple, since there are many fine distinctions to be made. What is freely accessible in the home is taboo outside; certain persons may be freely invaded, as in fighting with siblings, while others, such as strangers, are inviolable; certain persons are receptive to physical contact, such as parents or near relatives, while others not in the family group are untouchable; actions that may be performed in one place or at one time are

forbidden in other places and at other times. Then, too, the child confronts the magical power of money, whereby small pieces of metal or paper render freely accessible what is otherwise inviolable.

These lessons are indeed formidable, and the young child struggling with the complicated customs of group life faces a heavy task for which he needs endless patience and sympathetic teaching. How often a little mistake over private property, which he is just beginning to understand, evokes sudden and immediate punishment, with accusations of "thief" and "liar" and other terrifying characterizations. When we realize that these early lessons in observing the inviolabilities are the most essential steps in preparation for group living, perhaps we shall devise more desirable and effective methods of teaching them, and shall remember to provide toleration and reassurance for the bewildered child who is attempting to assimilate the cumulative customs of thousands of years. It is little wonder that the learning of these inviolabilities, involving as they do repeated frustrations and a form of negative conditioning that inhibits the response to biologically adequate stimuli of objects and persons, should so frequently impair the child's whole adult life, causing him to face every encounter and every negotiation with timidity or anxiety, or to be intensely preoccupied with getting the better of everyone in all situations.

Besides learning to inhibit his responses to things and persons who are inviolable, the child must also learn to perform those acts which his parents insist upon as the required actions in various situations. These actions include the traditional manners and customs, the etiquette and the moral duties which the parents especially cherish and respect and which they are compelled to teach their children as the essentials of life. These lessons are difficult for the child because, like the inviolability of things and persons, the required conduct has no natural, biological relation to the situations in which it is demanded of the child. He must, therefore, be repeatedly shown what to do, and prompted and compelled to do it, with a greater or less amount of verbal and often physical punishment. The outcome of this training is the establishment of more or less automatic conduct, according to the required pattern, which is always a variation, peculiar to the family, of the general socially approved pattern.

As in the teaching of inviolabilities, parental instruction as

to the performance of these required actions involves the exercise of authority, often by the father, who rarely has as close and affectionate a tie with the child as the mother and who, therefore, relies more upon coercion to exact obedience, while the mother relies upon the child's desire for her love and approval. Thus the child experiences authority and coercion for the first time, and only too often it is administered severely and arbitrarily, arousing in the child fear, resentment, and hostility toward the father.

These disturbing emotional reactions toward the parents, especially the father, are of crucial importance for the future of the child. As a member of a group, he has to learn to acknowledge and to accept authority, to recognize outside himself a regulator, controller, and arbiter of conduct that is largely traditional, not reasonable or based upon anything but custom. He must learn to observe in his conduct the repressions and frustrations required by the inviolability of things and persons; and equally he must learn to perform various acts, from small courtesies to the greater, more important duties appropriate to his sex, status, class, position, and so on, accepting all these complicated and largely ritualized acts as necessary and desirable and as duly sanctioned by the law and the prescribed rules of social living. The development of such conduct involves the constant recognition and willing acceptance of the authority of the state, which, to be really effective, must function, not in physical coercion and police supervision, but within the individual himself. Authority, then, like private property, is merely a way of behaving toward individuals and situations; it is an attitude or effective reaction toward what is expected or demanded.

Now if the young child experiences authority for the first time as coercive, severe, and brutal, as something that arouses fear, anxiety, and resentment, his socialization will be compromised. He cannot calmly and gracefully accept that which is expected or demanded, performing acts or refraining from responses, but rather he will feel tension, will resent the parental authority, and will develop a persistent hostility toward the parents, especially the father, and all others who attempt to direct his conduct.

Instead, then, of accepting the inviolabilities or the required performances, the child who has been thus treated will fail to build those conduct patterns into an integrated whole, in which his behavior and his personality are at one. He may outwardly conform

to what is demanded or prohibited, but only because of fear and anxiety. The learned conduct, essential to group life, is never assimilated or made wholly automatic, and so the child becomes preoccupied with the conflict between what he must do and not do and what he feels. Often he releases his feelings in misbehavior that is difficult to understand, for it gives the child nothing of value or advantage and usually is wholly incongruous with the situation. These aberrant actions are symptoms of conflict, modes of expressing resentment or hostility against authority that has made him fearful and unhappy.

With so many children exposed to this destructive experience of authority, destined by their persistent feelings of fear and resentment to unhappy adult lives, if not to more serious outcomes in mental disorders and criminality, the nursery schools are confronted by the urgent need of these children for help in accepting authority and in escaping these initial disturbances. Can we devise experiences in the nursery school that will enable the child to accept authority and to find freedom from the emotional conflicts and resentments that his previous experiences have engendered? The need is for ways of inculcating acceptance of authority without aggravating the already serious conflicts so many children have when they come to nursery schools; and this calls for reformulation of the problem, as discussed above, so that the authority will be transferred to the situation and divested of the personal element that evokes the resentment and conflict. Paradoxically, this depersonalization of authority depends upon a personal relation of the parent to the child wherein the exercise of authority is benevolent and helpful, not antagonistic and repressive.

This brings us to another life task of the child, who must create for himself, out of his experiences and the teaching he receives, an image of himself and of the kind of person he would like to be. This ideal of self will embody all the feelings of inadequacy and guilt that the child has experienced and must somehow express. Such feelings may lead to aspirations for constructive achievement, to altruistic, helpful conduct, and to other forms of expiation and atonement which, if not exaggerated into a neurotic drive for perfection, make the individual personality into a friendly, coöperative adult. Or they may lead to hostility and aggression, which take the form of intense competitive striving or coercive

conduct; to delinquency, so that the individual may obtain punishment; or to mental disorders, in which the individual punishes himself. All these adjustment patterns are exhibited in childhood, when the child already has adopted his "style of life," and if we had enough insight and understanding, these adjustments might be treated in the nursery-school group in such a way as to mitigate, if not actually to revise, these personality trends. No one can prescribe a general method or procedure for all children, but undoubtedly the largest single element in the situation is the kind and extent of affectionate personal interest shown by an adult toward the child, who thereby may find much needed help toward a constructive, not a self-defeating, ideal of self. The process of identification, wherein the child strives to emulate an admired and loved adult, makes the teacher-child relationship of crucial importance. Lack of sympathetic understanding, of tenderness and patient toleration, may turn the child toward hostility and aggression, from which he can be reclaimed only by long and difficult therapy later, if at all.

One of the most important problems facing students of personality to-day is this question whether hostility and aggression are inborn characteristics of all individuals or whether they are the reactions of individuals who, as infants and pre-school children, were deprived of needed love and affection and security and so were driven by the unrelieved pressure for socialization to hostile, aggressive, destructive conduct. This question is of the utmost importance socially and educationally, since the answer involves the future of our society and of the civilized world. If man is innately hostile and aggressive, prone to destructive antagonisms and rivalries, then the prospects for a better, more humanly desirable society are not very bright. If human nature, as theological tradition and many of our contemporary students of personality tell us, is born wicked, sinful, and hostile and must be forced to be social, coöperative, and altruistic, the task of education is essentially a coercive one, that of curbing the hostility, of teaching individuals to "handle their aggressiveness." If, on the other hand, human nature is essentially plastic, subject to educational direction toward friendliness, coöperativeness, gentleness, and genuine group or social activity, then the task of education is to prevent the early distortions and unnecessary deprivations that arouse resentment

and aggressiveness, by providing as much affectionate reassurance and toleration of individual, temperamental differences as possible for the children who have been ill treated or neglected by their parents. Here pre-school education has an immense opportunity and responsibility for the future course of our culture.

But here we must ask whether we know enough now to meet this issue of resentment and aggressiveness wisely. The policy of restraint and repression in many schools may prevent fighting and disorder for the moment, but it does nothing to release the child from the inner tensions and frustrations of which his aggressions are but symptoms. Perhaps we have to face a mixed answer to the earlier question and realize that tensions and resentment are probably present in all children in the early years, as a necessary consequence of the process of deprivations and coercions they undergo during socialization. Whether these tensions will become persistent, lifelong hostile attitudes toward the world, or be replaced by friendly, coöperative attitudes, may be the critical issue of pre-school education. No permanent good is achieved by a repressive policy, nor is any constructive end attained by permitting the children to fight it out, with the risk of damage to all concerned. What is needed is an imaginative, insightful handling of conflicts and aggressions on an experimental basis, addressed to the underlying anxiety, guilt, and frustrations and the need for reassurance and security. There is also need for methods of handling situations in such a way that the initial hostility or aggression of the child may be rendered unnecessary by opportunities for friendly, helpful responses. Many children do not know how to act coöperatively and need the skillful guidance of an adult to encourage them in friendly conduct and sympathetic actions. It must be realized that repeated rebuffs and frustrations may transform love into hatred and aggression, so that the child can only attack what he has most desired.

This brings us to the exigent question of freedom and self-expression, over which there has been so much controversy and often hasty action. It may help us to obtain some perspective on this question if we will remember again that the child faces a series of unavoidable life tasks, including the persistent problem of how to get along in an organized group life. To the young child the world around him is indeed precarious and ambiguous. He faces a natural world often dangerous and always puzzling even to adults;

his own organism, with its many functions and needs which must conform to parental and social patterning; obscure, often unconscious, impulses that impel him to actions that frequently he cannot understand, and that others usually resent, rebuke, and often retaliate for; a social or cultural world organized into patterns of behavior and regulated by symbols, such as language, that are subtly differentiated and variable; a constellation of human relationships, in the immediate family, the wider kinship group, the neighborhood, and the school, among which he must find personality fulfillment and security despite the capricious and disparate character of all these impinging personalities; and finally an immense body of tradition and folklore, knowledge, skills, and play.

Faced with such a welter of confusing, conflicting adjustments, the young child desperately needs the security of stable, persistently uniform situations, of dependable human relations, and of endless patience and tolerance. The frequent cry against any repression of the child involves a confusion that is often tragic for the child. Every culture involves deprivations and repression, the patterning and regulation of physiological functions and human behavior, which, if wisely handled, are only redirections and modulations of impulses. The young child especially needs a wisely administered regulation or direction because he cannot sustain the immense burden of making individual decisions on all the aspects of life and of learning unaided to manage his impulses. Few adults can do this, as we see in the overwhelming need for guidance, for precepts, for legal, ethical, and religious direction. Moreover, the regularization of hunger and elimination and the respecting of the inviolabilities leaves the individual free for other activities and interests that would not be possible if he were continually driven by hunger, beset by impulses to elimination, and at the mercy of every provocative personal contact or sexual stimulus. These learned patterns and repressions are the chief factors in man's ability to go beyond a purely organic existence. It is not the ordering of life that damages the child, but the distortion, the fears, anxieties, and permanent frustrations and inhibitions that parental and educational practices unnecessarily inflict upon the child in the process of establishing these socially and individually necessary repressions.

It is also the confusion and anxiety and insecurity of capricious, vacillating teaching that damages the personality in search of some-

thing stable and constant to build upon. Children love order, regularity, repetition of the same pattern endlessly, and they need consistent adult guidance and help in learning these patterns of what is essential to their adult life and social living. But they do not need, nor can they safely endure, the fears, the anxieties, the feelings of inadequacy and of guilt that so many parents and teachers instill during this socialization process. Indeed fear seems to be the chief psychological instrument in early child-rearing—either the arousal of fears by cruel and coercive treatment or the inculcation of fears of experience, of people, of living, which cripple the child for life. Fear, and the resentment or hostility it often generates, are indeed the major emotional drives in our social life and give rise to much unsocial and antisocial behavior. What the child needs, but seldom receives, is a clear-cut definition of the situation and of the conduct appropriate therein, so that he can and will learn what conduct is permitted and what is not permitted without the emotional disturbances he now experiences during these lessons. Practically, this means that the teaching by parents and teachers should stress the desirability or undesirability of the action without imputing blame to the child, so that instead of the usual admonishment, "You are a bad, naughty boy!" the statement should be, "That action is not desirable or not kind, not generous or not permissible, and I don't like it." The important difference is in the personal imputation of guilt and the emotional disturbance it creates in the child. ✓

As many writers have pointed out, the child accepts socialization and the inevitable frustrations and repressions involved largely because he wants love and security from the parent and teacher. The long-popular method of asking the child to do this or that "if you love me," is especially damaging because it fails to create a recognition of impersonal authority in situations. The love for parents should never be exploited to control the child whose anxiety lest he lose that love is already great. The traditional manner of teaching, by calling the child bad or wicked when it is the behavior that should be defined as undesirable, makes the child fearful, guilty, and unhappy, and, if continued, may establish a persistent feeling of guilt and inadequacy and of being rejected. To assuage that feeling of guilt and to overcome the sense of inadequacy and rejection, the child may commit more antisocial or forbidden acts to get the punishment he needs for his guilty feelings or to prove that he

is not worthless. As Dr. William Healy and Dr. Augusta Bronner have recently shown in their study, *New Light on Delinquency*, the delinquent generally has had an unhappy childhood, characterized by feelings of rejection, inadequacy, and guilt, and by lack of affection.

This point about the necessity of socialization for the child without undue emotional stress and strain during the process is being emphasized here because it has such great consequences for our social life. If we could persuade parents and teachers to avoid characterizing the child as bad or naughty, while defining the behavior, and then give the child ample reassurance when receiving such lessons, undoubtedly we could make an immense contribution to the reduction of delinquency, criminality, and other non-criminal, but socially destructive conduct on the part of those who spend their adult lives proving by the acquisition of property, prestige, and power that they are not as guilty or as worthless as they were repeatedly told in childhood.

This question of socialization of the child without distortion and emotional disturbances must be seen in the light of the great individual differences among children in intelligence, temperament, rate of maturation, and need of reassurance, so that each child may be treated individually. The professional urge to standardize, to routinize, to substitute academic training for sympathetic interest and insights into children and to look for uniformities and generalizations that will save thinking, all must be critically reexamined by nursery-school educators who are aware of these large social responsibilities. Especially is there a need for questioning the well-established principle that nursery-school teachers should be impersonal and should repress all affective responses to and from children. This principle came into vogue in the 1920's when behavioristic theories of child-rearing were dominant. The ideal of education was seen as that of almost complete emotional anesthesia and continually rational conduct, which is the ideal of the neurotic who is afraid of life and is seeking to suppress all feelings, of which he is fearful. As we realize how much the child is in need—as indeed all adults are also—of warm personal, human relations, of affectionate interest and real concern, and of opportunities to give and receive affection and to *feel*, we must challenge this old principle as directly contrary to the deepest need of the child and as destructive of

human values, which can be preserved only by sensitivity and feeling tones toward people and situations.

Here it is necessary to ask why are we so afraid to recognize that the child needs mothering, not only at home, but in the nursery school, and that nursery-school teachers, by the very nature of their work, must be mother surrogates, ready and capable of giving affection and tenderness and warm emotional response to the children and of accepting them from the children. Is it because mothering does not seem scientific that we have tried to exclude it from the nursery schools or because—and I say this in no critical spirit, but as a statement based upon the actual situation—so many of those in nursery-school education are unmarried and childless and have unconsciously projected their own personal life adjustment into the training of nursery-school teachers? When we reflect upon the number of children in all classes of society who are raised by fear, terror, punishment, and other sadistic methods, with little or no experience of love and affection, we may well ask whether mothering (not smothering) may not be the most important service the nursery school can render to little children. Mothering does not mean babying or pampering, but rather giving a feeling of being liked and wanted, of belonging to someone who cares, and of being guided in the conduct of life with benevolent interest and confidence.

Dr. David Levy, a year or so ago, told this story at a meeting of the American Orthopsychiatric Association. He said that the social workers in the Bureau of Child Guidance were having unusually successful results with problem children, just because they were being maternal to these boys and girls so frequently denied real mothering. But they gave up this procedure because, said he, it did not seem scientific and was so hard to record! Perhaps if the nursery-school teacher were to consider her function as not only educational, but clinical, it might be easier to accept what the psychotherapeutic clinician accepts—namely, the rôle of parent surrogate, who gives the child individual, personal interest and attention and tries to help that child work out a design for living by providing direction and deprivation, but always with interest and helpful concern.

Finally, we must look at the question of socialization in the light of the cultural changes through which we are now living, which are bringing about the destruction of so many of our traditional ideas, beliefs, and older certainties. The men and women of

to-morrow will have to live in a shifting, uncertain world, of rapidly changing ideas and conceptions, with few or no absolutes or certainties. What is to guide their lives, to help them find fulfillment and a design for living sanely, wholesomely, and coöperatively? Probably no previous generation has had to face such acute personal problems without help from religion, custom, and tradition. Either they will demand an authoritarian state because they cannot endure uncertainty or tolerate the destructive hostility and aggressions of unhappy individuals, or they will learn to seek in constructive work and recreative play, in the warm human relations of marriage, parenthood, and the family, a way of life that will permit realization of the enduring human values.

The nursery school, in close and coöperative relationship with the home and parents, is the primary agency for mental hygiene. The opportunity in pre-school education to build wholesome, sane, coöperative, and mature personalities, and to determine the future of our culture, is unlimited. The discharge of that responsibility lies in helping the young child to meet the persistent life tasks and to fulfill his insistent needs. But the nursery school cannot do this alone. It must have collaboration from the kindergarten and the grade schools, and it must find some way of coöperating with the home and the family, despite the frequent blindness and resistance of the parents. If nursery-school teachers were to realize that they are like parents, with their personal peculiarities, their emotional resistance and susceptibilities, their ignorance and rigid convictions—which may be just as undesirable for the child as the home practices they deprecate—perhaps such a realization would make them more tolerant and more willing to seek a basis of collaboration in meeting the fundamental needs of the child. The family can and does provide the child with a place, a status, with “belongingness” and often much needed love and affection. Can the nursery school organize its procedures and prepare its teachers to meet these same needs and also those other educational needs which the family has difficulty in supplying?

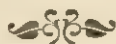
The fundamental needs of the child are in truth the fundamental needs of society.

MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

A Healthy Personality for Every Child

Statements of educational objectives commonly include some reference to a concern for "healthy personality development." Although such a concern is commendable, it is unfortunately true that many educators have not been explicit about the *criteria* for "healthy" development. Efforts to produce a specific kind of behavior through educational experiences are relatively meaningless unless there is some definition of what constitutes such behavior. A definition of this kind does not come easily. First, we need more understanding than we have regarding the complexities of personality change. Secondly, the question of what is "healthy development" involves such nonfactual considerations as basic personal values, religious convictions, and conceptions of the good society. For some time to come, therefore, there is room for disagreement in the definition of healthy personality and personality development.

One orientation is presented here. Utilizing concepts drawn from all the behavioral sciences, the article suggests some landmarks that are adequate throughout the course of development. The implications for educational practice are not made explicit in this section of the Conference report, but the student may wish to take advantage of this omission by attempting to deduce the educational consequences of the general psychological position it represents.



Many attempts have been made to describe the attributes of healthy personality. They have been put succinctly as the ability to

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love and the ability to work. A recent review of the literature suggests that the individual with a healthy personality is one who actively masters his environment, shows a unity of personality, and is able to perceive the world and himself correctly. Clearly, none of these criteria applies to a child. It seemed to us best, then, to present for the Conference's consideration an outline that has the merit of indicating at one and the same time the main course of personality development and the attributes of a healthy personality.

This developmental outline was worked out by Erik H. Erikson, a psychologist and practicing psychoanalyst who has made anthropological field studies and has had much experience with children. It is an analysis that derives from psychological theory, to which is added knowledge from the fields of child development and cultural anthropology. The whole is infused with the author's insight and personal philosophy.

In each stage of child development, the author says, there is a central problem that has to be solved, temporarily at least, if the child is to proceed with vigor and confidence to the next stage. These problems, these conflicts of feeling and desire, are never solved in entirety. Each shift in experience and environment presents them in a new form. It is held, however, that each type of conflict appears in its purest, most unequivocal form at a particular stage of child development, and that if the problem is well solved at that time the basis for progress to the next stage is well laid.

In a sense personality development follows biological principles. Biologists have found that everything that grows has a groundplan that is laid out at the start. Out of this groundplan the parts arise, each part having its time of special ascendancy. Together these parts form a functioning whole. If a part does not arise at its appointed time, it will never be able to form fully, since the moment for the rapid outgrowth of some other part will have arrived. Moreover, a part that misses its time of ascendancy or is severely damaged during its formative period is apt to doom, in turn, the whole hierarchy of organs. Proper rate and normal sequence is necessary if functional harmony is to be secured.

Personality represents the most complicated functioning of the human organism and does not consist of parts in the organic sense. Instead of the development of organs, there is the development of

locomotor, sensory, and social capacities and the development of individual modes of dealing with experience. Nevertheless, proper rate and proper sequence are as important here as in physical growth, and functional harmony is achieved only if development proceeds according to the groundplan.

In all this it is encouraging for parents and others who have children in charge to realize that in the sequence of his most personal experiences, just as in the sequence of organ formation, the child can be trusted to follow inner laws of development, and needs from adults chiefly love, encouragement, and guidance.

The operation of biological laws is seen, also, in the fact that there is constant interplay between organism and environment and that problems of personality functioning are never solved once and for all. Each of the components of the healthy personality to be described below is present in some form from the beginning, and the struggle to maintain it continues throughout life.

For example, a baby may show something like "autonomy" or a will of his own in the way he angrily tries to free his head when he is tightly held. Nevertheless, it is not until the second year of life that he begins to experience the whole conflict between being an autonomous creature and a dependent one. It is not until then that he is ready for a decisive encounter with the people around him, and it is not until then that they feel called upon to train him or otherwise curb his free-questing spirit. The struggle goes on for months and finally, under favorable circumstances, some compromise between dependence and independence is reached that gives the child a sense of well-being.

The sense of autonomy thus achieved is not a permanent possession, however. There will be other challenges to that sense and other solutions more in keeping with later stages of development. Nevertheless, once established at two or three years of age, this early sense of autonomy will be a bulwark against later frustrations and will permit the emergence of the next developmental problem at a time that is most favorable for its solution.

So it is with all the personality components to be described. They appear in miniature early in life. The struggle to secure them against tendencies to act otherwise comes to a climax at a time determined by emergence of the necessary physical and mental abilities. There are, throughout life, other challenges and other responses

but they are seldom so serious and seldom so decisive as those of the critical years.

In all this, it must be noted in addition, there is not the strict dichotomy that the analysis given below suggests. With each of the personality components to be described, it is not all or nothing: trust *or* mistrust, autonomy *or* doubt, and so on. Instead, each individual has some of each. His health of personality is determined by the preponderance of the favorable over the unfavorable, as well as by what manner of compensations he develops to cope with his disabilities.

THE SENSE OF TRUST

The component of the healthy personality that is the first to develop is the sense of trust. The crucial time for its emergence is the first year of life. As with the other personality components to be described, the sense of trust is not something that develops independent of other manifestations of growth. It is not that the infant learns how to use his body for purposeful movement, learns to recognize people and objects around him, and also develops a sense of trust. Rather, the concept "sense of trust" is a short-cut expression intended to convey the characteristic flavor of all the child's satisfying experiences at this early age. Or, to say it another way, this psychological formulation serves to condense, summarize, and synthesize the most important underlying changes that give meaning to the infant's concrete and diversified experience.

Trust can exist only in relation to something. Consequently a sense of trust cannot develop until the infant is old enough to be aware of objects and persons and to have some feeling that he is a separate individual. At about three months of age a baby is likely to smile if somebody comes close and talks to him. This shows that he is aware of the approach of the other person, that pleasurable sensations are aroused. If, however, the person moves too quickly or speaks too sharply the baby may look apprehensive or cry. He will not "trust" the unusual situation but will have a feeling of uneasiness, of mistrust, instead.

Experiences connected with feeding are a prime source for the development of trust. At around four months of age a hungry baby

will grow quiet and show signs of pleasure at the sound of an approaching footstep, anticipating (trusting) that he will be held and fed. This repeated experience of being hungry, seeing food, receiving food, and feeling relieved and comforted assures the baby that the world is a dependable place.

Later experiences, starting at around five months of age, add another dimension to the sense of trust. Through endless repetitions of attempts to grasp for and hold objects, the baby is finally successful in controlling and adapting his movements in such a way as to reach his goal. Through these and other feats of muscular coordination the baby is gradually able to trust his own body to do his bidding.

The baby's trust-mistrust problem is symbolized in the game of peek-a-boo. In this game, which babies begin to like at about four months of age, an object disappears and then reappears. There is a slightly tense expression on the baby's face when the object goes away; its reappearance is greeted by wriggles and smiles. Only gradually does a baby learn that things continue to exist even though he does not see them, that there is order and stability in his universe. Peek-a-boo proves the point by playful repetition.

Studies of mentally ill individuals and observations of infants who have been grossly deprived of affection suggest that trust is an early-formed and important element in the healthy personality. Psychiatrists find again and again that the most serious illnesses occur in patients who have been sorely neglected or abused or otherwise deprived of love in infancy. Similarly, it is a common finding of psychological and social investigators that individuals diagnosed as a "psychopathic personality" were so unloved in infancy that they have no reason to trust the human race and, therefore, no sense of responsibility toward their fellow men.

Observations of infants brought up in emotionally unfavorable institutions or removed to hospitals with inadequate facilities for psychological care support these findings. A recent report says: "Infants under six months of age who have been in an institution for some time present a well-defined picture. The outstanding features are listlessness, emaciation and pallor, relative immobility, quietness, unresponsiveness to stimuli like a smile or a coo, indifferent appetite, failure to gain weight properly despite ingestion of diets which are entirely adequate, frequent stools, poor sleep, an appear-

ance of unhappiness, proneness to febrile episodes, absence of sucking habits." ¹

Another investigation of children separated from their mothers at six to twelve months and not provided with an adequate substitute comes to much the same conclusion: "The emotional tone is one of apprehension and sadness, there is withdrawal from the environment amounting to rejection of it, there is no attempt to contact a stranger and no brightening if a stranger contacts him. Activities are retarded and the child often sits or lies inert in a dazed stupor. Insomnia is common and lack of appetite universal. Weight is lost, and the child becomes prone to current infections." ²

Most significant for our present point, these reactions are most likely to occur in children who up to the time of separation at six to nine months of age had a happy relation with their mothers, while those whose relations were unhappy are relatively unaffected. It is at about this age that the struggle between trusting and mistrusting the world comes to a climax, for it is then that the child first perceives clearly that he and his environment are things apart. That at this time formerly happy infants should react so badly to separation suggests, indeed, that they had had a faith which now was shattered. Happily, there is usually spectacular change for the better when the maternal presence and love are restored.

It is probably unnecessary to describe the numerous ways in which stimuli from without and from within may cause an infant distress. Birth is believed by some experts to be a painful experience for the baby. Until fairly recently doctors were likely to advise that babies be fed on schedule and that little attention be paid to their cries of hunger at other times. Many infants spent many of the waking hours of the first four months doubled up with colic. All of them had to be bathed and dressed at stated times, whether they liked it or not. Add to these usual discomforts the fact that some infants are handled rather roughly by their parents, that others hear angry words and loud voices, and that a few are really mistreated, and it will not be difficult to understand why some infants may feel the world is a place that cannot be trusted.

¹ Harry Bakwin, "Emotional Deprivation in Infants," *Journal of Pediatrics*, October, 1949, 35, 512-529.

² John Bowlby, M.D., Summary of Dr. Renè Spitz's observations, unpublished manuscript.

In most primitive societies and in some sections of our own society the attention accorded infants is more in line with natural processes. In such societies separation from the mother is less abrupt, in that for some time after birth the baby is kept close to the warmth and comfort of its mother's body and at its least cry the breast is produced. Throughout infancy the baby is surrounded by people who are ready to feed it, fondle it, otherwise comfort it at a moment's notice. Moreover, these ministrations are given spontaneously, wholeheartedly, and without that element of nervous concern that may characterize the efforts of young mothers made self-conscious and insecure by our scientific age.

We must not exaggerate, however. Most infants in our society, too, find smiles and the comfort of mother's soft, warm body accompanying their intake of food, whether from breast or bottle. Coldness, wetness, pain, and boredom—for each misfortune there is prompt and comforting relief. As their own bodies come to be more dependable, there is added to the pleasures of increasing sensory response and motor control the pleasure of the mother's encouragement.

Moreover, babies are rather hardy creatures and are not to be discouraged by inexperienced mothers' mistakes. Even a mother cat has to learn, and the kittens endure gracefully her first clumsy efforts to carry them away from danger. Then, too, psychologists tell us that mothers create a sense of trust in their children not by the particular techniques they employ but by the sensitiveness with which they respond to the children's needs and by their over-all attitude.

For most infants, then, a sense of trust is not difficult to come by. It is the most important element in the personality. It emerges at the most vulnerable period of a child's life. Yet it is the least likely to suffer harm, perhaps because both nature and culture work toward making mothers most maternal at that time.

THE SENSE OF AUTONOMY

The sense of trust once firmly established, the struggle for the next component of the healthy personality begins. The child is now

twelve to fifteen months old. Much of his energy for the next two years will center around asserting that he is a human being with a mind and will of his own. A list of some of the items discussed by Spock under the heading, "The One Year Old," will serve to remind us of the characteristics of that age and the problems they create for parents. "Feeling his oats." "The passion to explore." "He gets more dependent and more independent at the same time." "Arranging the house for the wandering baby." "Avoiding accidents." "How do you make him leave certain things alone?" "Dropping and throwing things." "Biting humans." "The small child who won't stay in bed at night."

What is at stake throughout the struggle of these years is the child's sense of autonomy, the sense that he is an independent human being and yet one who is able to use the help and guidance of others in important matters. This stage of development becomes decisive for the ratio between love and hate, between cooperation and wilfulness, for freedom of self-expression and its renunciation in the make-up of the individual. The favorable outcome is self-control without loss of self-esteem. The unfavorable outcome is doubt and shame.

Before the sense of autonomy can develop, the sense of trust must be reasonably well established and must continue to pervade the child's feeling about himself and his world. Only so dare he respond with confidence to his new-felt desire to assert himself boldly, to appropriate demandingly, and to hurl away without let or hindrance.

As with the previous stage, there is a physiological basis for this characteristic behavior. This is the period of muscle-system maturation and the consequent ability (and doubly felt inability) to coordinate a number of highly conflicting action patterns, such as those of holding on and letting go, walking, talking, and manipulating objects in ever more complicated ways. With these abilities come pressing needs to use them: to handle, to explore, to seize and to drop, to withhold and to expel. And, with all, there is the dominant will, the insistent "Me do" that defies help and yet is so easily frustrated by the inabilities of the hands and feet.

For a child to develop this sense of self-reliance and adequacy that Erikson calls autonomy, it is necessary that he experience over and over again that he is a person who is permitted to make choices.

He has to have the right to choose, for example, whether to sit or whether to stand, whether to approach a visitor or to lean against his mother's knee, whether to accept offered food or whether to reject it, whether to use the toilet or to wet his pants. At the same time he must learn some of the boundaries of self-determination. He inevitably finds that there are walls he cannot climb, that there are objects out of reach, that, above all, there are innumerable commands enforced by powerful adults. His experience is much too small to enable him to know what he can and cannot do with respect to the physical environment, and it will take him years to discover the boundaries that mark off what is approved, what is tolerated, and what is forbidden by his elders whom he finds so hard to understand.

As problems of this period, some psychologists have concentrated particularly on bladder and bowel control. Emphasis is put upon the need for care in both timing and mode of training children in the performance of these functions. If parental control is too rigid or if training is started too early, the child is robbed of his opportunity to develop, by his own free choice, gradual control of the contradictory impulses of retention and elimination.

To others who study child development, this matter of toilet training is but a prototype of all the problems of this age-range. The sphincters are only part of the whole muscle system, with its general ambiguity of rigidity and relaxation, of flexion and extension. To hold and to relinquish refer to much more than the bowels. As the child acquires the ability to stand on his two feet and move around, he delineates his world as *me* and *you*. He can be astonishingly pliable once he has decided that he wants to do what he is supposed to do, but there is no reliable formula for assuring that he will relinquish when he wants to hold on.

The matter of mutual regulation between parent and child (for fathers have now entered the picture to an extent that was rare in the earlier stage) now faces its severest test. The task is indeed one to challenge the most resourceful and the most calm adult. Firmness is necessary, for the child must be protected against the potential anarchy of his as yet untrained sense of discrimination. Yet the adult must back him up in his wish to "stand on his own feet," lest he be overcome by shame that he has exposed himself foolishly and by doubt in his self-worth. Perhaps the most constructive rule a parent

can follow is to forbid only what "really matters" and, in such forbidding, to be clear and consistent.

Shame and doubt are emotions that many primitive peoples and some of the less sophisticated individuals in our own society utilize in training children. Shaming exploits the child's sense of being small. Used to excess it misses its objective and may result in open shamelessness, or, at least, in the child's secret determination to do as he pleases when not observed. Such defiance is a normal, even healthy response to demands that a child consider himself, his body, his needs, or his wishes evil and dirty and that he regard those who pass judgment as infallible. Young delinquents may be produced by this means, and others who are oblivious to the opinion of society.

Those who would guide the growing child wisely, then, will avoid shaming him and avoid causing him to doubt that he is a person of worth. They will be firm and tolerant with him so that he can rejoice in being a person of independence and can grant independence to others. As to detailed procedures, it is impossible to prescribe, not only because we do not know and because every situation is different but also because the kind and degree of autonomy that parents are able to grant their small children depends on feelings about themselves that they derive from society. Just as the child's sense of trust is a reflection of the mother's sturdy and realistic faith, so the child's sense of autonomy is a reflection of the parents' personal dignity. Such appears to be the teaching of the comparative study of cultures.

Personal autonomy, independence of the individual, is an especially outstanding feature of the American way of life. American parents, accordingly, are in a particularly favorable position to transmit the sense of autonomy to their children. They themselves resent being bossed, being pushed around; they maintain that everybody has the right to express his opinion and to be in control of his affairs. More easily than people who live according to an authoritarian pattern, they can appreciate a little child's vigorous desire to assert his independence and they can give him the leeway he needs in order to grow up into the upstanding, look-you-in-the-eye kind of individual that Americans admire.

It is not only in early childhood, however, that this attitude toward growing children must be maintained. As was said at the out-

set, these components of the healthy personality cannot be established once and for all. The period of life in which they first come into being is the most crucial, it is true. But threats to their maintenance occur throughout life. Not only parents, then, but everybody who has significant contact with children and young people must respect their desire for self-assertion, help them hold it within bounds, and avoid treating them in ways that arouse shame or doubt.

This attitude toward children, toward all people, must be maintained in institutional arrangements as well. Great differences in educational and economic opportunity and in access to the law, discrimination of all kinds are threats to this ingredient of mental health. So, too, may be the over-mechanization of our society, the depersonalization of human relations that is likely to accompany large-scale endeavor of all kinds.

Parents, as well as children, are affected by these matters. In fact, parents' ability to grant children the kind of autonomy Americans think desirable depends in part on the way they are treated as employees and citizens. Throughout, the relation must be such as affirms personal dignity. Much of the shame and doubt aroused in children result from the indignity and uncertainty that are an expression of parents' frustrations in love and work. Special attention must be paid to all these matters, then, if we are to avoid destroying the autonomy that Americans have always set store by.

THE SENSE OF INITIATIVE

Having become sure, for the time being, that he is a person in his own right and having enjoyed that feeling for a year or so, the child of four or five wants to find out what kind of person he can be. To be any particular kind of person, he sees clearly, involves being able to do particular kinds of things. So he observes with keen attention what all manner of interesting adults do (his parents, the milkman, the truck driver, and so on), tries to imitate their behavior, and yearns for a share in their activities.

This is the period of enterprise and imagination, an ebullient, creative period when phantasy substitutes for literal execution of desires and the meagerest equipment provides material for high

imaginings. It is a period of intrusive, vigorous learning, learning that leads away from the child's own limitations into future possibilities. There is intrusion into other people's bodies by physical attack, into other people's ears and minds by loud and aggressive talking. There is intrusion into space by vigorous locomotion and intrusion into the unknown by consuming curiosity.

By this age, too, conscience has developed. The child is no longer guided only by outsiders; there is installed within him a voice that comments on his deeds, and warns and threatens. Close attention to the remarks of any child of this age will confirm this statement. Less obvious, however, are experts' observations that children now begin to feel guilty for mere thoughts, for deeds that have been imagined but never executed. This, they say, is the explanation for the characteristic nightmares of this age period and for the over-reaction to slight punishment.

The problem to be worked out in this stage of development, accordingly, is how to will without too great a sense of guilt. The fortunate outcome of the struggle is a sense of initiative. Failure to win through to that outcome leaves the personality overburdened, and possibly over-restricted, by guilt.

It is easy to see how the child's developing sense of initiative may be discouraged. So many of the projects dreamed up at this age are of a kind which cannot be permitted that the child may come to feel he is faced by a universal "No." In addition he finds that many of the projects are impossible of execution and others, even if not forbidden, fail to win the approval of the adults whom he has come to love. Moreover, since he does not always distinguish clearly between actuality and phantasy, his over-zealous conscience may disapprove of even imaginary deeds.

It is very important, therefore, for healthy personality development that much leeway and encouragement be given to the child's show of enterprise and imagination and that punishment be kept at a minimum. Boys and girls at this stage are extraordinarily appreciative of any convincing promise that someday they will be able to do things as well, or maybe better, than father and mother. They enjoy competition (especially if they can win) and insistence on goal; they get great pleasure from conquest. They need numerous examples of the kinds of roles adults assume, and they need a chance to try them out in play.

The ability that is in the making is that of selecting social goals and persevering in the attempt to reach them.

If enterprise and imagination are too greatly curbed, if severe rebukes accompany the frequently necessary denial of permission to carry out desires, a personality may result that is over-constricted. Such a personality cannot live up to its inner capacities for imagination, feeling, or performance, though it may over-compensate by immense activity and find relaxation impossible.

Constriction of personality is a self-imposed constriction, an act of the child's over-zealous conscience. "If I may not do this, I will not even think it," says conscience, "for even thinking it is dangerous." Resentment and bitterness and a vindictive attitude toward the world that forces the restriction may accompany this decision, however, and become unconscious but functioning parts of the personality. Such, at least, is the warning of psychiatrists who have learned to know the inmost feelings of emotionally handicapped children and adults.

This developmental stage has great assets as well as great dangers. At no time in life is the individual more ready to learn avidly and quickly, to become big in the sense of sharing obligation and performance. If during this pre-school period the child can get some sense of the various roles and functions that he can perform as an adult, he will be ready to progress joyfully to the next stage, in which he will find pleasurable accomplishment in activities less fraught with phantasy and fear.

There is a lesson in this for later periods of personality development as well. As has been said before, these conflicts that come to a head at particular periods of a child's life are not settled once and for all. The sense of initiative, then, is one that must be continually fostered, and great care must be taken that youngsters and young people do not have to feel guilty for having dared to dream.

Just as we Americans prize autonomy, so too do we prize initiative; in fact, we regard it as the cornerstone of our economic system. There is much in the present industrial and political mode of life that may discourage initiative, that may make a young person think he had best pull in his horns. What these tendencies are and what they may do to youngsters and to their parents, who too must feel free if they are to cultivate the sense of initiative in their children, is a subject that warrants much serious discussion.

THE SENSE OF ACCOMPLISHMENT

The three stages so far described probably are the most important for personality development. With a sense of trust, a sense of autonomy, and a sense of initiative achieved, progress through the later stages is pretty well assured. Whether this is because children who have a good environment in their early years are likely to continue to be so favored, or whether it is because they have attained such strength of personality that they can successfully handle later difficulties, research has not yet made clear. We do know that nearly all children who get a good start continue to develop very well, and we know that some of those who start off poorly continue to be handicapped. Observations of this sort seem to support psychological theory in the conclusion that personality is pretty well set by about six years of age. Since, however, some children develop into psychologically healthy adults in spite of a bad start, and since some who start well run into difficulties later, it is clear that much research is needed before this conclusion can be accepted as wholly correct.

To return to the developmental analysis, the fourth stage, which begins somewhere around six years of age and extends over five or six years, has as its achievement what Erikson calls the sense of industry. Perhaps "sense of accomplishment" would make the meaning clearer. At any rate, this is the period in which preoccupation with phantasy subsides, and the child wants to be engaged in real tasks that he can carry through to completion. As with the other developmental stages, there are foreshadowings of this kind of interest long before six years of age. Moreover, in some societies and in some parts of our own society children are trained very early to perform socially useful tasks. The exact age is not the point at issue. What is to be pointed out is that children, after a period characterized by exuberant imagination, want to settle down to learning exactly how to do things and how to do them well.

In contrast to the preceding stages and to the succeeding ones, this stage does not consist of a swing from a violent inner upheaval to a new mastery. Under reasonably favorable circumstances this is a period of calm, steady growth, especially if the problems of the previous stages have been well worked through. Despite its unspec-

tacular character, this is a very important period, for in it is laid a firm basis for responsible citizenship. It is during this period that children acquire not only knowledge and skills that make for good workmanship but also the ability to cooperate and play fair and otherwise follow the rules of the larger social game.

The chief danger of this period is the presence of conditions that may lead to the development of a sense of inadequacy and inferiority. This may be the outcome if the child has not yet achieved a sense of initiative, or if his experiences at home have not prepared him for entering school happily, or if he finds school a place where his previous accomplishments are disregarded or his latent abilities are not challenged. Even with a good start the child may later lapse into discouragement and lack of interest if at home or school his individual needs are overlooked—if too much is expected of him, or if he is made to feel that achievement is beyond his ability.

It is most important for health of personality, therefore, that schools be conducted well, that methods and courses of instruction be such as will give every child the feeling of successful accomplishment. Autobiographies of juvenile delinquents show time and again a boy who hated school—hated the fact that he was marked out as stupid or awkward, as one who was not as good as the rest. Some such boys find in jobs the sense of accomplishment they miss at school and consequently give up their delinquent ways. Others, however, are handicapped in job finding and keeping by the very fact that in school they did not develop the sense of industry; hence they have work failure added to their other insecurities. Nor is delinquency the only or the most likely outcome of lack of success in school. Many children respond in a quieter way, by passive acceptance of their inferiority. Psychologically they are perhaps even more harmed.

Our Puritan tradition maintains that children will not work except under the spur of competition, so we tend to fear the suggestion that all should succeed. To help children develop a sense of accomplishment does not mean, however, merely giving all of them good marks and passing them on to the next grade. Children need and want real achievement. How to help them secure it, despite differences in native capacity and differences in emotional development, is one of the school's most serious challenges.

School, of course, is not the only place in which children at this

stage of development can secure the sense of industry. In work at home there are many opportunities for a child to get a feeling of mastery and worthwhile endeavor. Rural youth groups and their urban counterparts cater to this need, and many recreation programs put as much emphasis on work as on play. School, however, is the legally constituted arrangement for giving instruction to the young, so it is upon teachers that the professional responsibility for helping all children achieve a sense of industry and accomplishment rests.

In addition to aiding personality development in this way, teachers have many opportunities for reconfirming their pupils' sense of trust, autonomy, and initiative or for encouraging its growth in children who have been somewhat hampered by previous life experiences. Teachers cannot work alone, of course, either in aiding a child in the development of new capacities or in strengthening old ones. Jointly with parents and others they can do much, not only for children of already healthy personality but also for many whose development has been handicapped.

THE SENSE OF IDENTITY

With the onset of adolescence another period of personality development begins. As is well known, adolescence is a period of storm and stress for many young people, a period in which previous certainties are questioned and previous continuities no longer relied upon. Physiological changes and rapid physical growth provide the somatic base for the turmoil and indecision. It may be that cultural factors also play a part, for it has been observed that adolescence is less upsetting in some societies than in others.

The central problem of the period is the establishment of a sense of identity. The identity the adolescent seeks to clarify is who he is, what his role in society is to be. Is he a child or is he an adult? Does he have it in him to be someday a husband and father? What is he to be as a worker and an earner of money? Can he feel self-confident in spite of the fact that his race or religion or national background makes him a person some people look down upon? Over all, will he be a success or a failure? By reason of these questions adolescents are sometimes morbidly preoccupied with how

they appear in the eyes of others as compared with their own conception of themselves, and with how they can make the roles and skills learned earlier jibe with what is currently in style.

In primitive societies adolescents are perhaps spared these doubts and indecisions. Through initiation rites, often seemingly cruel in character, young people are tested out (and test themselves out) and are then welcomed into a socially recognized age category in which rights and duties and mode of living are clearly defined. In our society there are few rituals or ceremonies that mark the change in status from childhood to youth. For those who have religious affiliations, confirmation, joining the church, may serve this purpose in part, since the young people are thereby admitted, in this one segment of their lives at least, to the company of adults. Such ceremonies serve, in addition, to reaffirm to youth that the universe is trustworthy and stable and that a way of life is clearly laid out.

Graduation ceremonies might play a part in marking a new status were it not that, in present-day America, status is so ill defined. What rules of law and custom exist are too diverse to be of much help. For example, legal regulations governing age of "consent," age at which marriage is permitted, age for leaving school, for driving a car, for joining (or being required to join) the Army or Navy mark no logical progressions in rights and duties. As to custom, there is so much variation in what even families who live next door to each other expect or permit that adolescents, eager to be on their way, are practically forced into standardizing themselves in their search for status. In this they are ably abetted by advertisers and entertainers who seek their patronage, as well as by well-meaning magazine writers who describe in great detail the means by which uniformity can be achieved.

In this urge to find comfort through similarity, adolescents are likely to become stereotyped in behavior and ideals. They tend to form cliques for self-protection and fasten on petty similarities of dress and gesture to assure themselves that they are really somebody. In these cliques they may be intolerant and even cruel toward those they label as different. Unfortunate as such behavior is and not to be condoned, intolerance serves the important purpose of giving the group members at least the negative assurance that there is something they are not.

The danger of this developmental period is self-diffusion. As

Biff puts it in *The Death of a Salesman*, "I just can't take hold, Mom. I can't take hold of some kind of a life." A boy or girl can scarcely help feeling somewhat diffuse when the body changes in size and shape so rapidly, when genital maturity floods body and imagination with forbidden desires, when adult life lies ahead with such a diversity of conflicting possibilities and choices.

Whether this feeling of self-diffusion is fairly easily mastered or whether, in extreme, it leads to delinquency, neurosis or outright psychosis, depends to a considerable extent on what has gone before. If the course of personality development has been a healthy one, a feeling of self-esteem has accrued from the numerous experiences of succeeding in a task and sensing its cultural meaning. Along with this, the child has come to the conviction that he is moving toward an understandable future in which he will have a definite role to play. Adolescence may upset this assurance for a time or to a degree but fairly soon a new integration is achieved, and the boy or girl sees again (and with clearer vision) that he belongs and that he is on his way.

The course is not so easy for adolescents who have not had so fortunate a past or for those whose earlier security is broken by a sudden awareness that as members of minority groups their way of life sets them apart. The former, already unsure of themselves, find their earlier doubt and mistrust reactivated by the physiological and social changes that adolescence brings. The latter, once secure, may feel that they must disavow their past and try to develop an "American" personality.

Much has been learned and written about the adolescent problems of the boys and girls whose early personality development has been impaired. How they can be helped, if their disorders are not too severe, is also fairly well known. The full implications of these findings for parents, teachers, and others who would guide youth are still to be worked out but, even so, there is considerable information.

Less well understood are the difficulties and the ways of helping adolescents who grew up in cultures that are not of the usual run. These boys and girls may have been privileged in having had a childhood in which there was little inhibition of sensual pleasures, and in which development proceeded by easy, unselfconscious stages. For them, difficulties arise if their parents lose trust in them-

selves or if their teachers apply sudden correctives, or if they themselves reject their past and try to act like the others. The new role of middle-class adolescent is often too hard to play. Delinquency or bizarre behavior marks the failure.

How to reach these boys and girls, how to help them attain their desire, is a matter not well understood. It is clear, however, that they should not be typed by pat diagnoses and social judgments, for they are ever ready to become the "bums" that they are called. Those who would guide them must understand both the psychology of adolescence and the cultural realities of the day. There is trust to be restored and doubt and guilt and feelings of inferiority to be overcome. The science of how to do this is still pretty much lacking, though here and there teachers, clergymen, probation officers, and the like are highly successful in the task.

Hard though it be to achieve, the sense of identity is the individual's only safeguard against the lawlessness of his biological drives and the authority of an over-weening conscience. Loss of identity, loss of the sense that there is some continuity, sameness, and meaning to life, exposes the individual to his childhood conflicts and leads to emotional upsets. This outcome was observed time and again among men hard pressed by the dangers of war. It is clear, then, that if health of personality is to be preserved much attention must be given to assuring that America makes good on its promises to youth.

THE SENSE OF INTIMACY

After the sense of identity, to a greater or less extent, is achieved it becomes possible for the next component of the healthy personality to develop. This is the sense of intimacy, intimacy with persons of the same sex or of the opposite sex or with one's self. The youth who is not fairly sure of his identity shies away from interpersonal relations and is afraid of close communion with himself. The surer he becomes of himself, the more he seeks intimacy, in the form of friendship, love and inspiration.

In view of the early age at which boy and girl attachments are encouraged today, it may seem strange to put the critical period for the development of the sense of intimacy late in adolescence. The

explanation is that, on the one hand, sexual intimacy is only one part of what is involved, and, on the other, boy-girl attachments of earlier age periods are likely to be of a somewhat different order. Regarding the latter point, it has been observed by those who know young people well that high-school age boys and girls often use each other's company for an endless verbal examination of what the other thinks, feels, and wants to do. In other words, these attachments are one means of defining one's identity.

In contrast to this use of friendship and companionship, boys and girls late in adolescence usually have need for a kind of fusion with the essence of other people and for a communion with their own inner resources. If, by reason of inadequacies in previous personality development, this sense of intimacy cannot be achieved, the youth may retire into psychological isolation and keep his relations with people on a formal, stereotyped level that is lacking in spontaneity and warmth or he may keep trying again and again to get close to others, only to meet with repeated failure. Under this compulsion he may even marry, but the role of mate is one he can rarely sustain, for the condition of true two-ness is that each individual must first become himself.

In this area of personality development as in the others, cultural factors play a part in sustaining or in discouraging the individual in his development. American culture is unusually successful in encouraging the development of the feelings of independence, initiative, industry, and identity. It is somewhat less successful in the area of intimacy, for the culture's ideal is the subordination of sexuality and sensuality to a life of work, duty, and worship.

Consequently, American adolescents are likely to be unsupported by their parents and to find little confirmation in story or song for their desire to sense intimately the full flavor of the personality of others. In many of them, then, the sense of intimacy does not develop highly and they have difficulty in finding in close personal relations the outlet for tension that they need.

There is some evidence that a change in conventions and customs in this respect is in the making, however. Too abrupt change in any such cultural matter is not to be urged, but it is to be hoped that gradual, frank discussion can bring about gradual alteration in attitude and overcome the dangers inherent in the traditional rigidity.

THE PARENTAL SENSE

"Parental sense" designates somewhat the same capacity as that implied in the words, creativity or productivity. The individual has normally come to adulthood before this sense can develop fully.

The parental sense is indicated most clearly by interest in producing and caring for children of one's own. It may also be exhibited in relation to other people's children or by a parental kind of responsibility toward the products of creative activity of other sorts. The mere desire for or possession of children does not indicate that this component of the healthy personality has developed. In fact, many parents who bring their children to child guidance clinics are found not to have reached this stage of personality development.

The essential element is the desire to nourish and nurture what has been produced. It is the ability to regard one's children as a trust of the community, rather than as extensions of one's own personality or merely as beings that one happens to live with.

Failure to develop this component of the healthy personality often results in a condition which has not been adequately categorized clinically. Although a true sense of intimacy has not developed, the individual may obsessively seek companionship. There is something of egotism in this as in his other activities, a kind of self-absorption. The individual is inclined to treat himself as a child and to be rivalrous with his children, if he has any. He indulges himself, expects to be indulged, and in general behaves in an infantile or immature manner.

There are both individual and social explanations of the failure to develop an adequate parental sense. Individually, the explanation may be found in the inadequate development of the personality components previously described. In some people this failure goes far back. Because of unfortunate experiences in childhood they did not arrive at a firm sense of trust, autonomy, and the rest. In others it is only inadequacies in later stages, especially in the development of the sense of intimacy, that are at fault.

Socially, as has been suggested throughout this analysis, healthy personality development depends upon the culture's ideals and

upon the economic arrangements of the society. In order that most people may develop fully the sense of being a parent, the role of parent, both mother and father, must be a respected one in the society. Giving must rank higher than getting, and loving than being loved. The economy must be such that the future can be depended upon and each person can feel assured that he has a meaningful and respected part to play. Only so can most individuals afford to renounce selfish aims and derive much of their satisfaction from rearing children.

THE SENSE OF INTEGRITY

The final component of the healthy personality is the sense of integrity. In every culture the dominant ideals, honor, courage, faith, purity, grace, fairness, self-discipline, become at this stage the core of the healthy personality's integration. The individual, in Erikson's words, "becomes able to accept his individual life cycle and the people who have become significant to it as meaningful within the segment of history in which he lives."

To continue Erikson's description, "Integrity thus means a new and different love of one's parents, free of the wish that they should have been different, and an acceptance of the fact that one's life is one's own responsibility. It is a sense of comradeship with men and women of distant times and of different pursuits, who have created orders and objects and sayings conveying human dignity and love. Although aware of the relativity of all the various life styles that have given meaning to human striving, the possessor of integrity is ready to defend the dignity of his own life style against all physical and economic threats. For he knows that, for him, all human dignity stands or falls with the one style of integrity of which he partakes."

The adult who lacks integrity in this sense may wish that he could live life again. He feels that if at one time he had made a different decision he could have been a different person and his ventures would have been successful. He fears death and cannot accept his one and only life cycle as the ultimate of life. In the extreme, he experiences disgust and despair. Despair expresses the feeling that time is too short to try out new roads to integrity.

Disgust is a means of hiding the despair, a chronic, contemptuous displeasure with the way life is run. As with the dangers and the solutions of previous periods, doubt and despair are not difficulties that are overcome once and for all, nor is integrity so achieved. Most people fluctuate between the two extremes. Most, also, at no point, either attain to the heights of unalloyed integrity or fall to the depths of complete disgust and despair.

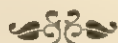
Even in adulthood a reasonably healthy personality is sometimes secured in spite of previous misfortunes in the developmental sequence. New sources of trust may be found. Fortunate events and circumstances may aid the individual in his struggle to feel autonomous. Imagination and initiative may be spurred by new responsibilities, and feelings of inferiority be overcome by successful achievement. Even late in life an individual may arrive at a true sense of who he is and what he has to do and may be able to win through to a feeling of intimacy with others and to joy in producing and giving.

Evidence of such changes is found in the case records of psychiatrists and social workers. Common sense observation attests that similar changes in health of personality are sometimes accomplished without benefit of any form of psychotherapy. Much remains to be learned about this, however, especially about how life itself may serve as therapy.

For the healthy personality development of children and youth it is necessary that a large proportion of adults attain a sense of integrity to a considerable degree. Not only parents but all who deal with children have need of this quality if they are to help children maintain the feeling that the universe is dependable and trustworthy. Integrity is relatively easily attained and sustained when the culture itself gives support, when a meaning to life is clearly spelled out in tradition and ceremony, and roles are clearly defined. Our culture, with its rapidly changing technology and its diversity of value standards, leaves much for the individual to work out for himself. In the American dream, however and the Judaeo-Christian tradition on which it is based there are values and ideals aplenty. In the interest of the welfare of children and youth, in order that a generation of happy individuals and responsible citizens be reared, it is highly important that these values and ideals be brought into prominence and that the promise of American life be kept.

Chapter Three

TEACHERS' PERCEPTIONS OF PUPIL BEHAVIOR



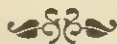
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MANFRED H. SCHRUPP AND
CLAYTON M. GJERDE

Teacher Growth in Attitudes Toward Behavior Problems of Children

In 1928, E. K. Wickman published some findings that raised considerable question about the ability of teachers to recognize the symptoms of serious behavior problems in their classrooms. His implications seemed to be that the teacher's conception of problem behavior was dictated largely by primary concern for the maintenance of "good order and discipline." This conclusion, if valid, offers an interesting commentary on the then current conceptions of educational method and organization and the adequacy of the psychological training available to prospective teachers. One of the valuable outcomes of that investigation was indirect: the findings and subsequent discussions of them resulted in an increased awareness of the relationship between the perceptual set of the teacher and the way in which he observes and evaluates.

Despite the date of the study, the findings of the Wickman study are still quoted and discussed in education. Professors Manfred H. Schrupp and Clayton M. Gjerde have attempted to reproduce that investigation in order to compare the behavior of contemporary teachers with that of their 1928 colleagues.



Wickman's study of teachers' attitudes toward behavior problems of children, published in 1928,¹ has been quoted ever since

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as evidence that teachers are unable to recognize as serious those problems so designated by clinicians. The very fact that his study has so frequently been quoted should have been influential in changing teachers' attitudes. Certainly teacher education programs have devoted increased time and effort to the development of a 'mental hygiene viewpoint.' It would therefore seem desirable to determine whether the attitudes of teachers of today correlate as poorly with those of mental hygienists as the professional literature implies. The major purpose of this study was to compare present-day teachers' attitudes with attitudes of earlier teachers and mental hygienists and with mental hygienists of today. To facilitate direct comparisons with Wickman's results, his procedures were repeated as closely as practicable.

In his study, Wickman had a group of five hundred eleven teachers and a group of thirty mental hygienists rate the seriousness of fifty behavior traits of children. He found that the ratings made by the teachers correlated about zero with the ratings made by the mental hygienists, and that there appeared to be wide discrepancies between the two groups with regard to the kinds of behavior problems which were considered serious. In interpreting his study, it should be noted that the ratings were made by the teachers and hygienists on the basis of distinctly different instructions. Wickman was careful to point this out in his report:

"The techniques employed for measuring the reactions of the mental hygienists to behavior disorders, therefore, differed in certain respects from the methods employed in measuring teachers' reactions. In the rating scales for teachers the adoption of three precautionary techniques for controlling the teachers' responses will be recalled . . . : (1) the directions to teachers for rating were phrased in such a way as to secure responses to the *present* problem, and the question of the significance of the present behavior disorder upon the *future* development of the child, though possibly unavoidably implied, was not definitely raised. The task set was to rate the degree of maladjustment represented by the immediate problem. (2) Care was also taken to establish in the teachers a mental set for responding to the "seriousness of" the amount of "difficulty produced by" the particular type of troublesome behavior. The assumption was that the degree to which teachers found a certain problem serious, difficult, or undesirable repre-

sented the amount of attention they directed to the problem and the effort exerted towards its modification. (3) Then, too, in order to elicit the first, unrationalized reactions, the teachers were instructed to rate as rapidly as possible, and a time limit was imposed for completing the ratings.

"The precautionary techniques utilized in measuring the teachers' attitudes were exactly reversed in eliciting the attitudes of the mental hygienists. (1) Instead of evaluating the *present* problem, the mental hygienists were directed to rate the significance of the problem in terms of its effect on the *future* life of the child . . . (2) Though the terms "seriousness" and "difficulty" of a problem were retained in the directions for rating, the concept of the "importance" of the behavior problems was emphasized and replaced the concepts of "consequence" and "undesirableness." (3) Instead of issuing instructions for rating as rapidly as possible and imposing a time limit for completing the ratings, as administering the scale to teachers, an attempt was made to elicit from the mental hygienists responses that were intellectually controlled and evaluated. The directions read, 'Try to make this a professional opinion that is as free as possible from your emotional reactions.' " ²

The substance of this quotation has often been overlooked when the results of Wickman's research have been discussed.³ Ellis and Miller⁴ attempted to correct this difficulty in their 1936 study with Denver teachers by using Wickman's schedule, but modifying the directions so that they were essentially the same as those presented by Wickman to the mental hygienists. They found a correlation of .49 between the Denver teachers and Wickman's mental hygienists. Unfortunately it was not possible to determine whether this larger correlation between teachers and hygienists represented a change in point of view on the part of this teacher group, or whether it resulted from the change in directions. Mitchell,⁵ in a study conducted in 1940 with teachers from the same school systems used by Wickman, employed a modification of the original Wickman scale, as well as a modification of the directions. Sixty-three mental hygienists also rated the traits, following the same directions used with the teachers. He reported a correlation of .70 between teachers and mental hygienists. He also reported a correlation of .21 between Wickman's teachers of 1927 and his mental hygienists of 1940, indicating a possible shift in the opinions of mental hygi-

enists. Here, again, the higher relationship between teachers and mental hygienists could be due to the fact that these two groups followed the same directions in making their ratings.

In the present study, Wickman's schedules B-4 and B-5⁶ were employed with the teachers and mental hygienists, respectively, without modification of any kind, either in the schedule of behavior traits itself or in the directions. It was therefore possible to make direct comparisons of present findings with those of twenty-four years ago. It should be remembered, however, that in this study, as in Wickman's, the results do not permit a direct comparison of teachers and clinicians as professional groups. Here, as in Wickman's study, the careful and considered judgment of the clinicians was used as the most nearly ideal criterion possible for evaluating the teachers' rapid, unrationalized reactions to the behavior problems.

Schedule B-4 and a personal data sheet were sent to one hundred ninety-nine teachers, selected at random from regularly employed teachers in the secondary and elementary schools of San Diego, California, through the coöperation of the Department of Research of the city schools. Of the one hundred ninety-nine schedules distributed, one hundred twenty-seven (63.8 per cent) were returned, and 119 (59.8 per cent) were usable. Of the one hundred nineteen teachers responding, fifty-nine were from the elementary level, and sixty from the secondary level.

Thirty-seven mental hygienists completed schedule B-5, and they were employed by public school guidance agencies or clinics, as were those in the Wickman study. Thirty-one of them were from the San Diego City School Guidance Bureau, while six were employed as clinicians by the Long Beach (California) City Schools. The group was composed of one psychiatrist, twelve psychologists, twenty-four school social workers and visiting teachers. As will be shown later, the ratings by these clinicians correlated highly (.80 to .88) with clinicians in 1927 and in 1940, which suggests that these groups were quite comparable in their attitudes toward behavior problems of children, insofar as the Wickman scale measured them.

As in the Wickman study, the respondents were asked to rate the behavior traits by marking on a line, scaled on the teachers' form from 'Of no consequence' to 'An extremely grave problem,' and on the clinicians' form from 'Of no importance at all' to 'Of

extremely great importance.' The responses were quantified by the use of a scale ranging from 0 to 20, as described by Wickman,⁷ thus permitting the determination of mean scale scores on each trait for teachers and clinicians. It was possible then to compute product-moment correlations between the means of the ratings by the teacher group and the means of ratings by Wickman's clinicians, Mitchell's clinicians, and those involved in the present study. In addition, similar correlations were determined between the means of ratings made by groups of teachers in 1927, 1940, and 1951, and between the means of the ratings made by clinician groups in the same years. These correlations are presented in Table I.

TABLE I
CLINICIAN AND TEACHER INTERCORRELATIONS ON ATTITUDES
TOWARD BEHAVIOR PROBLEMS OF CHILDREN

| | 1951 <i>Tchs.</i> | 1940 <i>Tchs.</i> | 1927 <i>Tchs.</i> | 1951 <i>Clin.</i> | 1940 <i>Clin.</i> |
|------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 1927 Clin. | .43 ** | .35 * | -.04 | .88 ** | .80 ** |
| 1940 Clin. | .61 ** | .70 ** | .21 | .85 ** | |
| 1951 Clin. | .56 ** | .54 ** | .09 | | |
| 1927 Tchs. | .76 ** | .78 ** | | | |
| 1940 Tchs. | .81 ** | | | | |

* Significant at the five per cent level.

** Significant at the one per cent level.

Using the ratings of the clinicians of 1927 as a criterion, there is evidence of definite increase in agreement between clinician and teacher attitudes, as the correlation of .43 is statistically significant at the one per cent level. Although the greatest change appears to be between 1927 and 1940, this cannot be assumed since Mitchell's 1940 group of teachers rated the behavior problems following the same directions employed in the case of the clinician group. For the same reason, the correlation between the 1940 clinicians' ratings and the 1940 teachers' ratings (.70) may not be directly comparable to those obtained in 1927 and 1951. However, the 1951 teachers' ratings correlated .61 with those of the 1940 clinicians, a considerable and significant gain over the .21 reported by Mitchell between the 1927 teachers' ratings and the 1940 clinicians' ratings.

If the ratings of the clinicians involved in the present study (hereafter referred to as '1951 clinicians') are used as a criterion,

we again see a significant increase in the correlations between teachers' and clinicians' ratings. The 1927 teachers' ratings correlated only .09 with those of 1951 clinicians, while the ratings by 1951 teachers correlated .56 (significant at the one per cent level) with those of the 1951 clinician group. Here, too, the increase appears at first glance to be greater from 1927 to 1940 than from 1940 to 1951, but this may again be due to the fact that the 1940 teachers followed essentially the same directions in rating the traits as did the 1951 clinicians. This was not true in the case of the 1951 teachers.

Correlations between ratings by the three clinician groups (.88, .88, .80) are all significant at the one per cent level, and of a high order. For the teacher groups the same is true, with correlations ranging from .76 to .81. As mentioned earlier, this suggests that the teacher and clinician groups are distinct groups rather than being random samples from the same population. To determine if this was true for the 1951 teacher and clinician groups, each group was randomly divided into two subgroups of approximately equal size. Product-moment correlations were then computed between the mean scale scores of the subgroups. This correlation was .94 for the two teacher subgroups, and also .94 for the two clinician subgroups, again indicating that teachers and clinicians were distinct and fairly homogeneous groups.

In general, the correlations presented in Table I suggest that a definite increase in agreement between teachers and clinicians took place between 1927 and 1951, and that this increased agreement is probably due primarily to a change in the attitudes of teachers rather than of clinicians. Assuming (1) that the Wickman scale actually measures attitudes toward behavior problems of children, (2) that clinicians' ratings constitute a valid criterion, and (3) that the teachers studied are reasonably representative groups, it can be concluded that teachers' attitudes of this kind have improved significantly in the last twenty-four years.

Another method of indicating the relationships between two groups is by comparison of ranks. Wickman's study is frequently cited as evidence of lack of teacher concern for children's behavior traits which are indicative of tendencies toward shyness and withdrawal. This conclusion has been based in part upon a comparison of those of the fifty behavior traits which were rated among the

ten most serious by one group and the ten least serious by the other group. Table II summarizes these data for the three teacher and three clinician groups of 1927, 1940, and 1951.

TABLE II

BEHAVIOR TRAITS RANKED AMONG THE TEN MOST SERIOUS BY ONE GROUP
AND AMONG THE TEN LEAST SERIOUS BY THE OTHER GROUP

| | <i>1927 Teachers</i> | <i>1940 Teachers</i> | <i>1951 Teachers</i> |
|------------|----------------------|----------------------|----------------------|
| 1927 Clin. | Masturbation * | Destroying * | Disobedience * |
| | Destroying * | Masturbation * | Destroying * |
| | Unsocialness | Sensitiveness | |
| | Overcritical | | |
| | Sensitive | | |
| 1940 Clin. | Unsocialness | (none) | Disobedience * |
| | Overcritical | | |
| 1951 Clin. | Masturbation * | Masturbation * | (none) |
| | Unsocialness | Shyness | |
| | Overcritical | | |
| | Shyness | | |

* Rated among ten most serious by teacher group, and ten least serious by clinician group. Not starred—vice versa.

In 1927, there were five traits in all which were rated among the ten most serious by one group and among the ten least serious by the other. In 1951, there were no such extreme disagreements. Two traits, 'disobedience' and 'destroying,' which were rated among the ten least serious by the 1927 clinicians were rated among the ten most serious by 1951 teachers. As has been pointed out by Ellis and Miller,⁸ this may be in part justified when one considers the nature of the work of the two groups and the directions which the two groups were asked to follow in their ratings. Perhaps the 1951 clinicians recognized this, since they ranked 'destroying' 15, and 'disobedience' 24.

Table III * gives, for each of the fifty traits, the means of the ratings by the 1951 teachers and clinicians (columns 1 and 2). These means have been ranked (columns 3 and 4), and the differences in ranks determined (column 5). Similar information for 1927 teachers and clinicians, as reported by Wickman, are also indicated (columns 6, 7, and 8).

* [Table omitted]

Examination of the rank orders indicates that some significant disagreements still exist between teachers and clinicians in their rating of seriousness of behavior traits. Among the fifty traits, there were sixteen for which the rank difference between ratings by 1951 teachers and clinicians was 15 or greater. These are listed in Table IV in the order of their rank differences.

TABLE IV
TRAITS ON WHICH GREATEST DISAGREEMENT APPEARS WHEN RATED
BY 1951 TEACHERS AND CLINICIANS

| <i>Traits Rated More Serious by Teachers</i> | <i>Rank Difference</i> | <i>Traits Rated More Serious by Clinicians</i> | <i>Rank Difference</i> |
|--|------------------------|--|------------------------|
| 1. Impertinence, defiance | 26.5 | 1. Shyness | 31 |
| 2. Impudence, rudeness | 26 | 2. Suspiciousness | 27.5 |
| 3. Obscene notes, pictures, etc. | 24 | 3. Dreaminess | 25.5 |
| 4. Disobedience | 24 | 4. Fearfulness | 22 |
| 5. Disorderliness | 24 | 5. Sensitiveness | 20.5 |
| 6. Heterosexual activity | 23 | 6. Overcritical of others | 19 |
| 7. Masturbation | 20 | 7. Imaginative lying | 16 |
| 8. Untruthfulness | 16 | 8. Nervousness | 16 |

The evidence in Table IV suggests that teachers, compared with clinicians, still tend to be more concerned with those behavior traits which appear to be transgressions against orderliness and, perhaps, morality, and less concerned with those traits which appear to be related to withdrawal. Again, it must be remembered that this difference may be due, in part at least, to the differences in directions given to the two groups. However, it seems likely that the differences reflect a real difference in attitude between the two groups, since Mitchell's⁹ data also support this conclusion in spite of the fact that his groups followed identical directions in making the ratings.

The difference between 1951 teachers and clinicians, as indicated in Table IV, does not appear as large as the difference between 1927 teachers and clinicians as shown in Table V. It will be noted that, for the 1927 groups, there were twenty-eight traits in which there was a rank difference of 15 or more, as compared with sixteen

for the 1951 groups. The magnitude of the difference between teachers' and clinicians' ratings also tended to be greater for the 1927 groups.

TABLE V
TRAITS ON WHICH GREATEST DISAGREEMENT APPEARED WHEN RATED
BY 1927 TEACHERS AND CLINICIANS

| <i>Traits Rated More Serious by Teachers</i> | <i>Rank Differ- ence</i> | <i>Traits Rated More Serious by Clinicians</i> | <i>Rank Differ- ence</i> |
|--|----------------------------------|--|----------------------------------|
| 1. Masturbation | 38 | 1. Unsocal, withdrawing | 39.5 |
| 2. Destroying | 35 | 2. Sensitiveness | 38 |
| 3. Profanity | 32 | 3. Shyness | 36.5 |
| 4. Smoking | 31 | 4. Overcritical of others | 36 |
| 5. Impertinence, defiance | 30.5 | 5. Suspiciousness | 35 |
| 6. Disobedience | 30 | 6. Fearfulness | 31 |
| 7. Disorderliness | 25.5 | 7. Resentfulness | 25 |
| 8. Obscene notes, pictures, etc. | 24.5 | 8. Sullenness, sulkiness | 23 |
| 9. Heterosexual activity | 24 | 9. Domineering, overbearing | 21.5 |
| 10. Laziness | 19 | 10. Dreaminess | 21.5 |
| 11. Untruthfulness | 18 | 11. Suggestible | 20 |
| 12. Truancy | 16 | 12. Unhappy, depressed | 19.5 |
| 13. Impudence | 15.5 | 13. Tattling | 17 |
| | | 14. Physical coward | 16 |
| | | 15. Easily discouraged | 15.5 |

SUMMARY

This study was an attempt to re-examine certain conclusions, presented by Wickman in 1928 and still widely cited, as to the attitude of teachers towards the behavior problems of children. In an effort to closely approximate a replication of the Wickman study, the experimental design duplicated that used by Wickman. Therefore, it was possible to make direct comparisons between the results of the two studies, in spite of their common limitations. In other words it was appropriate to compare ratings by teachers of 1927 with those by teachers of 1951 by examining their relation-

ships with the criterion ratings, even though clinicians and teachers as professional groups should not be compared directly.

This comparison showed, insofar as the groups studied can be considered representative, that the attitudes of teachers of 1951 agreed much more closely with the 'ideal criterion' than did teachers of 1927. This was evidenced primarily in three ways:

1) The correlation between the means of ratings of the 1951 teacher and clinician groups was .56, as compared with $-.04$ in Wickman's study of 1927.

2) None of the traits listed among the ten most serious by one group was listed among the ten least serious by the other group. Wickman found five traits so rated.

3) As shown in Tables IV and V the extent of disagreement between teachers and clinicians in 1951 was not as great as was true in 1927.

Although clinician and teacher groups agreed much more closely in 1951 than in 1927, definite disagreements were still evident. While it is difficult to determine the degree to which the disagreements were a result of experimental design, it is interesting to note that the direction of the disagreement was similar to that cited by Wickman. Teachers, when compared with clinicians still appeared to be less concerned about behavior traits associated with withdrawal and more concerned about those which appear to be transgressions against orderliness and, perhaps, morality.

This study has demonstrated the value of repeating earlier studies with no significant modification of experimental design, especially when those earlier studies frequently serve as the basis for generalizations. The chief difference between the present study and that of Wickman was with respect to the geographical location of the populations studied. This variation, however, should not materially affect the validity of the following general conclusions:

1) The attitudes of 1951 teachers toward the behavior problems of children were much more in agreement with the criterion attitudes established by clinicians than was true for 1927 teachers. This fact should be considered carefully by authors of textbooks in psychology and educational psychology. In fairness to both professional groups, the data from this study, as well as Wickman's study, should be interpreted in the light of the experimental design.

It is likely that teachers' attitudes will never approximate very closely the 'ideal criterion attitudes' as established by clinicians, since good teachers will always need to be concerned about temporary, but disturbing, behavior in the classroom.

2) Disagreements between attitudes of teachers and the criterion attitude established by clinicians, though not as pronounced as in 1927, still exist, and these disagreements are of the same nature as those pointed out by Wickman. Those responsible for teacher education, both pre-service and in-service, evidently need to continue to emphasize what might be called 'a mental-hygiene viewpoint.'

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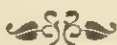
- 1 E. K. Wickman, *Children's Behavior and Teachers' Attitudes*, New York: Commonwealth Fund. 1928.
- 2 Wickman, *op. cit.*, pp. 119-121.
- 3 It is interesting to note that modern authors continue to quote Wickman's study without indicating the fact that the ratings made by teachers and clinicians are not directly comparable because of major differences in directions to the two groups for rating the seriousness of the problems listed. Texts in psychology and educational psychology, published in the last decade, were pulled from the library shelves until a dozen were found which cited Wickman's study. Of these, seven failed to mention this important fact, while stressing the differences in attitudes between teachers and clinicians. Three mentioned a difference in 'point of view' of the two groups but failed to indicate the differences in directions. Only two gave a clear statement of the differing directions used by Wickman.
- 4 D. B. Ellis, and L. W. Miller, "Teachers' Attitudes and Behavior Problems," *Journal of Educational Psychology*, 27:501-511, Oct., 1936.
- 5 John C. Mitchell, "A Study of Teachers' and Mental Hygienists' Ratings of Certain Behavior Problems of Children," *Journal of Educational Research*, 36:292-307, December, 1942.
- 6 Wickman, *op. cit.*, pp. 205-211.
- 7 Wickman, *op. cit.*, p. 97.
- 8 Ellis and Miller, *op. cit.*, 508.
- 9 Mitchell, *op. cit.*

CELIA B. STENDLER

How Well Do Elementary-school Teachers Understand Child Behavior?

Professor Celia B. Stendler addresses herself to the same phenomena with which the preceding study was concerned. Her feeling is, however, that the discrepancy between the judgments of teachers and clinicians may not be so questionable as has been generally assumed. Teachers and clinicians may have evaluated the behavior problems from different but equally relevant points of view. That is, teachers may have assumed that the task was to evaluate in terms of "the problems of classroom management" rather than "the problems of personal adjustment."

The study offers a general test of the foregoing possibility and, further, provides additional data about teachers' conceptions of the best way in which to handle certain behavior problems.



To the elementary school each year come children with many kinds of problems. Teachers have to deal with children who fight and children who are afraid to fight; children who do too much work and children who don't do enough work; children who lie and children who steal; children who daydream and children who clown; children who are suspicious and children who are withdrawn. The kind of insight into such problems which elementary teachers have is very important. It is a vital factor in determining whether children will be treated in ways conducive to good mental health, or in ways which will further poor adjustment.

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What kind of insight do teachers have into child behavior? Wickman's study,¹ completed as far back as 1928, showed that teachers and clinical psychologists differed considerably in their rating of the seriousness of various kinds of behavior. The clinical psychologists listed unsocialness, suspiciousness, unhappiness, resentfulness and the like as being very important problems from the standpoint of adjustment. These were not considered as serious by teachers who placed, instead, such practices as heterosexual activity, stealing, masturbation, or 'toilet talk' high on the list of problem behavior. The implication from the study would seem to be that teachers do not always recognize the kinds of behavior which are indicative of poor adjustment.

A study by W. Drayton Lewis² contributes additional information about teachers' insight into child behavior. Teachers were asked to select children in their classrooms whom they considered to be retarded, geniuses or problems. An analysis of the problem group showed that teachers considered as serious cases those who were upsetting to classroom routine. Lack of tidiness or resistance to teacher authority were mentioned as problems, rather than extreme shyness or withdrawal which the clinician would regard as serious.

It has been pointed out, however, that the discrepancy between teachers' and clinicians' judgments as to what constitutes serious behavior may not be as damning to the teacher as appears at first glance. Actually, the difference in opinion as to what constitutes problem behavior may be due to the fact that teachers and clinicians are looking at children from different points of view. The teacher may look upon suspiciousness as important from the standpoint of personal adjustment, but may find aggressiveness or obscene talk much more serious from the standpoint of classroom management.

The approach in the present study to the problem of teacher insight into child behavior had a different emphasis. As part of a comprehensive school survey an attempt was made to find out how teachers thought certain kinds of behavior problems should

¹ E. K. Wickman, *Children's Behavior and Teachers' Attitudes*, New York: The Commonwealth Fund, Division of Publications, 1928.

² W. Drayton Lewis, "Some Characteristics of Children Designated as Mentally Retarded, as Problems and as Geniuses by Teachers," *Journal of Genetic Psychology*, 1947, 70:29-51.

be handled. By asking a teacher to describe what he considered to be the best way to handle a particular behavior problem, it was hoped that the teacher's insight into that particular problem might be revealed.

METHOD

The procedure used to disclose teacher insight into child behavior was a test containing twenty-five free response statements describing various behavior patterns in children. Teachers were asked to complete these by describing what they thought was the best way of treating each particular problem. This test was presented to all elementary teachers (one hundred fifty-seven) in a midwestern community. All tests were unsigned and no effort was made to identify the person answering the test. The teachers were part of a fine public school system and had had the advantage of an in-service training program for many years. It was expected, then, that as a group they would deal with behavior more constructively than the average classroom teacher.

The test follows:

PROBLEMS OF CHILD BEHAVIOR

Here are some statements about children which are not complete. Each statement describes a particular kind of behavior problem. For example, the first statement says, "I think the child who never finishes on time should." You are to finish the statement by describing what you think would be the best way of treating his particular problem.

- (1) I think the child who never finishes on time should
- (2) I think the child who continually fights with other children should
- (3) I think the child who continually steals should
- (4) I think the child who bites his fingernails should
- (5) I think the child who daydreams most of the time should
- (6) I think the child who relies on the teacher too much should
- (7) I think the child who does his work over and over until it is just right should
- (8) I think the child who never works up to his capacity should
- (9) I think the child who never pays attention should

- (10) I think the child who is always late should
- (11) I think the child who always lies should
- (12) I think the child who always talks back to the teacher should
- (13) I think the child who is easily discouraged should
- (14) I think the child who continually shows off in class should
- (15) I think the child who always feels everyone is picking on him should
- (16) I think the child who loses his temper when he doesn't get his way should
- (17) I think the child who uses vulgar language should
- (18) I think the child who tries to cheat on exams should
- (19) I think the child who is always unhappy and moody should
- (20) I think the child who continually plays truant should
- (21) I think the child who is a bully should
- (22) I think the child who wastes school materials should
- (23) I think the child who continually disobeys should
- (24) I think the child who is disliked by other children should
- (25) I think the child who is timid and shy should

Answers to the test describing how teachers thought certain behavior problems should be handled were classified under six categories:

1) Take punitive measures. This category included all answers which recommended punishment of any kind.

2) Talk to him, moralize. Answers which indicated that the child should be talked to and the error of his ways pointed out to him were classified under this category.

3) Send him to a doctor.

4) Adjust the work. This category included teachers' answers recommending that the amount of work be decreased or increased, or recommending a particular kind of project as a way of handling the behavior problem.

5) Praise or encourage him.

6) Study him to find the cause of behavior and plan a course of action accordingly.

Three experts in the field of mental hygiene also completed the sentences on the test. These experts were in agreement that the best answer for all twenty-five items was Category 6. In other words, regardless of what the problem was, these experts would agree that the cause of the behavior should be sought and action planned in the light of the cause.

RESULTS

Table I shows the percentage of teacher responses falling under each category. It is interesting to note that teachers in this modern school system are beyond the stage of attributing behavior to physical causes. Not so long ago it was popular practice with parents and doctors as well as teachers to look to diseased tonsils, infected teeth and overactive or sluggish glands for an explanation of any kind of behavior pattern. Whenever a child showed any

TABLE I

PERCENTAGE OF RESPONSES FOR SIX CATEGORIES ON TWENTY-FIVE ITEMS
DESCRIBING PUPIL BEHAVIOR MADE BY 157 ELEMENTARY TEACHERS
IN A MIDWESTERN PUBLIC SCHOOL SYSTEM

| <i>Category</i> | <i>Per Cent of Responses</i> |
|--|------------------------------|
| 1) Take punitive measures | 13.9 |
| 2) Talk to the child | 33.4 |
| 3) Send him to a doctor | 2.7 |
| 4) Adjust the work | 22.5 |
| 5) Praise or encourage | 9.1 |
| 6) Study him to find cause of behavior | 14.6 |
| 7) No answer | 3.8 |

signs of being a problem child, it was immediately suggested that he see a doctor. Only 2.7 per cent of the teachers tested suggested Category 3 as a remedy. Item 4 on fingernail biting, as Table II indicates, was the only item which more teachers answered by referring the child to a doctor than by using some other technique. Thirty-four per cent of the teachers completed the statement in that manner. Seven per cent of the teachers thought poor attention and daydreaming were also due to physical causes and children guilty of these practices should see a doctor. Most mental hygienists, however, would agree that fingernail biting, daydreaming and lack of attention would probably indicate emotional difficulty rather than physical.

Categories 4, 5, and 6, which included such remedies as adjusting the work, praising or encouraging, or studying the child to find causes of behavior, represent constructive ways of dealing with behavior problems. Forty-six per cent of all teachers tested would

TABLE II

PERCENTAGE OF RESPONSES IN EACH OF SIX CATEGORIES FOR 25 ITEMS ON A PROBLEMS OF CHILD BEHAVIOR TEST TAKEN BY 157 ELEMENTARY TEACHERS IN A MIDWESTERN PUBLIC SCHOOL SYSTEM

CATEGORIES

| ITEMS | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|--|------------------------------|-----------------------------|-------------------------|--------------------|------------------------|--|--------------|
| | Take punitive measures | Talk to him; moralize | Send him to a doctor | Adjust the work | Praise or encourage | Study to find cause of behavior | No answer |
| 1) I think the child who never finishes on time should | 12.1 | 13.4 | 1.3 | 44.0 | 17.2 | 10.8 | 1.3 |
| 2) I think the child who fights with other children should | 15.9 | 42.7 | 2.6 | 10.8 | .64 | 26.8 | .64 |
| 3) I think the child who steals should | 7.0 | 49.0 | 1.3 | 3.2 | 0 | 38.2 | 1.3 |
| 4) I think the child who bites his fingers should | 1.9 | 16.6 | 34.4 | 18.5 | 3.2 | 22.3 | 3.2 |
| 5) I think the child who daydreams should | 1.9 | 17.2 | 7.6 | 55.4 | 2.6 | 10.8 | 4.5 |
| 6) I think the child who relies on the teacher too much should | 3.2 | 22.9 | 0 | 54.8 | 17.8 | .64 | .64 |
| 7) I think the child who does his work over and over until it is just right should | 1.3 | 49.7 | 0 | 17.8 | 27.4 | 1.3 | 2.6 |
| 8) I think the child who won't work up to his capacity should | 9.6 | 20.4 | 3.2 | 36.9 | 19.8 | 8.3 | 1.9 |
| 9) I think the child who doesn't pay attention should | 24.2 | 19.1 | 7.6 | 27.4 | 1.3 | 8.9 | 11.5 |
| 10) I think the child who is always late should | 30.6 | 22.9 | .64 | 9.6 | 0 | 33.8 | 2.6 |
| 11) I think the child who lies should | 10.8 | 58.0 | 1.3 | 5.10 | 0 | 18.8 | 6.4 |
| 12) I think the child who talks back to the teacher should | 14.7 | 58.0 | 0 | 5.10 | 0 | 17.2 | 5.1 |
| 13) I think the child who is easily discouraged should | 0 | 7.6 | 0 | 33.8 | 57.3 | 1.3 | 0 |
| 14) I think the child who shows off in class should | 22.3 | 25.5 | 0 | 36.3 | .64 | 7.6 | 7.6 |
| 15) I think the child who feels everyone is picking on him should | 1.3 | 37.6 | 1.3 | 15.9 | 15.3 | 22.9 | 5.7 |
| 16) I think the child who loses his temper when he doesn't get his way should | 29.3 | 52.9 | 0 | 4.5 | 0 | 8.3 | 5.1 |
| 17) I think the child who uses vulgar language should | 19.1 | 65.6 | 0 | 3.2 | 0 | 8.3 | 3.8 |
| 18) I think the child who tries to cheat on exams should | 12.7 | 58.6 | 0 | 19.1 | 0 | 5.1 | 4.5 |
| 19) I think the child who is unhappy and moody should | 0 | 10.2 | 6.4 | 34.4 | 16.6 | 29.9 | 2.6 |
| 20) I think the child who plays truant should | 12.7 | 20.4 | 0 | 24.8 | .64 | 36.9 | 4.5 |
| 21) I think the child who is a bully should | 38.2 | 25.5 | 0 | 22.9 | .64 | 7.6 | 5.1 |
| 22) I think the child who wastes school materials should | 38.9 | 52.9 | 0 | 3.8 | 0 | .64 | 3.8 |
| 23) I think the child who disobeys should | 38.9 | 39.5 | 0 | 2.6 | 0 | 11.5 | 7.6 |
| 24) I think the child who is disliked by other children should | 0 | 46.5 | 0 | 15.3 | 7.6 | 28.0 | 2.6 |
| 25) I think the child who is timid and shy should | 0 | 2.6 | 0 | 56.7 | 39.6 | .64 | .64 |

employ measures such as these in working with children. Adjusting the work was the procedure recommended by 22.5 per cent of the teachers. Forty-four per cent would adjust the work for the child who never finishes, fifty-five per cent for the daydreamer, fifty-four per cent for the dependent child, thirty-six per cent for the child who doesn't work hard enough, twenty-seven per cent for the non-attentive child, thirty-six per cent for the show-off, thirty-four per cent for the unhappy child, and fifty-six per cent for the shy, timid child. Techniques for adjusting the work might range from decreasing the load for the child who never finishes to providing jobs which would keep a child busy and out of mischief. Teachers' responses in this category indicated that they accepted the responsibility for changing the environment so that the child might be helped.

Only thirteen per cent of elementary teachers tested recommended punitive measures in dealing with problems of child behavior. Three items in particular were singled out for this kind of treatment: bullying, tardiness and disobedience. More teachers—thirty-eight per cent—would treat bullying by punishment than by any other means. Thirty-eight per cent of the teachers would punish for disobedience, and thirty per cent for tardiness. Favorite punishments were keeping a tardy child after school, shaming the class clown, isolating the disobedient child, and denying 'privileges.' No teacher recommended corporal punishment.

Although punishment is probably used in classrooms more often than responses would indicate, it must be remembered that teachers in taking the test were asked to describe what they considered 'best' methods of dealing with problem behavior. The fact that only thirteen per cent of the responses recommended punitive measures would seem to indicate that most teachers do not consider punishment a respectable method of dealing with problems of child behavior. This is in line with Mowrer's observation³ that parents, too, have come to look upon punishment as an undesirable method of handling children and that punishment is, therefore, frequently resorted to with a sense of guilt. This writer is not advocating punitive measures as a method of helping children with the problems listed in the test described in this manuscript, but

³ O. H. Mowrer, "Discipline and Mental Health," *Harvard Educational Review*, xvii, Fall, 1947.

rather that there needs to be a re-thinking through of the kind of punitive measures used, and the place of these in the elementary-school classroom.

The largest number of responses for any one category was thirty-three per cent for Category 2, Talking to the Child or Moralizing. More teachers tested would use this technique for dealing with children than any other. Responses indicated that teachers would point out to the child the error of his ways, tell him others would not like him if he persisted in such actions, or tell him his parents or his classmates would be ashamed of him. Items of behavior which more teachers would treat by talking to the child rather than any other way included fighting, stealing, doing work over and over, lying, talking back, losing one's temper, being suspicious, swearing, cheating, being unpopular, disobeying and wasting school materials.

While most of the comments teachers would make to pupils do no harm, one might question how effective they are. The cause of lying which persists over a long period of time may be deep-rooted in the emotions, and simply talking to a child about it and telling him it is wrong to lie may do little good. Talking to a child about his behavior as a way of dealing with a problem of behavior assumes that all behavior is dependent upon the will and is rational; a mental hygiene approach assumes that there is more to behavior than will-power and that reasoning with a child may not help him to develop the insight to help himself. This does not rule out talking to a child, but simply says that for serious behavior difficulties it should not be the main approach.

Category 5, Study the Child and Plan Accordingly, was the response clinicians gave as the best means for changing patterns of child behavior. In other words, clinicians felt the need for more information about the child before prescribing remedies. Only three items of behavior called forth this response with many teachers: stealing, truancy, and tardiness. Thirty-eight per cent of the teachers thought the child who stole should be studied, thirty-six per cent the truant, and thirty-three per cent the tardy child. One might read into this the implication that teachers think these three problems call for facts about the out-of-school life of the child, whereas suspiciousness and withdrawn behavior do not. It also seems to imply that teachers may consider stealing, truancy, and

tardiness more serious than other problems of behavior since they warrant additional study.

SUMMARY

As part of a comprehensive school survey, an attempt was made to measure teacher insight into child behavior. The method used was a free response questionnaire consisting of twenty-five items describing problems of child behavior. All elementary teachers in the system surveyed took the test. Three mental hygienists were also asked to take the test and their responses served as a benchmark against which the teachers might be evaluated.

Teachers in the school system being surveyed recognized constructive measures for the most part in dealing with child behavior. They favored such procedures as adjusting the work, praising or encouraging, or studying the child to find causes of behavior. A large percentage of teachers considered talking to the child or moralizing as the best way of treating behavior problems. A smaller percentage of responses favored punitive measures, and very few responses indicated that medical care was necessary to improve behavior.

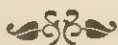
Results would seem to indicate that the test described in this study might be successfully used by other school systems to evaluate teacher insight into pupil behavior, and that comparisons might be made with the results obtained in the present study.

JOHN WITHALL

Assessment of the Social-Emotional Climates Experienced by a Group of Seventh- graders as They Moved from Class to Class

During their elementary-school years, most pupils pass through the classrooms of six to sixteen teachers. At the secondary level, the number is considerably larger. How much variation exists in the social-emotional climates found in these educational groupings? To what extent can the psychological climate of a class be attributed to the teacher's habits of perceiving and responding to pupils?

Professor John Withall provides a tentative answer to the first question, and his findings have valuable bearing on the second. The technique used to gather the data for the study has only recently found its way into educational research and is particularly appropriate to the problem considered here.



A technique¹ has been developed for assessing the social-emotional climate in classrooms through a categorization of the teach-

¹ John Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," Ph.D. Thesis, Department of Education, University of Chicago, 1948.

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er's statements. The instrument called the Social-Emotional Climate Index comprises criteria whereby teacher-statements can be distributed among seven categories. The criteria for each category are as follows:

Category 1. Learner-supportive statements or questions. These are teacher-statements or questions that express agreement with ideas, actions or opinions of the learner, or that commend or reassure the learner. Agreement is frequently expressed by a monosyllabic response such as "Yes," "Right," "Uhuh," and the like. Commendation or reassurance may be stated in terms of

- a) class-accepted criteria or goals, or
- b) the private goals and subjective criteria of the teacher.

The *dominant intent* of these statements or questions is to praise, encourage or bolster the learner.

Category 2. Acceptant or clarifying statements of questions. These are teacher-statements or questions which

- a) accept, i.e., evidence considerable understanding by the teacher of, -or
- b) clarify, i.e., restate clearly and succinctly in the teacher's words, the ideational or the feeling content of the learner's statements. The *dominant intent* of these teacher-responses is to help the learner gain insight into his problem, i.e., define his "real" problem and its solution in more operational terms.

Category 3. Problem-structuring statements or questions. Problem-structuring responses by the teacher offer facts or ideas or opinions to the learner about either i) phenomena, or ii) procedures, in a non-threatening and objective manner. These responses contain *no* element of advising or recommending the adoption of certain ideas or procedures. Problem-structuring responses are frequently posed as questions which seek further information from the learner about the problem confronting him; or they may be statements which offer information to the learner about his problem. The learner is free to accept or to reject in part or in entirety the facts or opinions that are presented to him. Problem-structuring responses may be questions which the teacher asks either a) to further increase his own understanding of what the learner has said or b) to increase the precision of the learner's statement of the problem. Problem-structuring responses are problem-centered rather than either teacher or learner-

centered. Nevertheless the *dominant intent* is to sustain the learner by facilitating his problem-solving activities.

Category 4. Statements evidencing no supportive intent. These statements are neither teacher-centered, nor learner-centered, nor problem-centered. They constitute a small percentage of the total teacher-responses. These responses include statements in which the teacher a) questions himself aloud, b) repeats verbatim a statement that the learner has just made, c) uses a polite formality, d) states an administrative or procedural detail such as "We'll meet in Room 25 tomorrow."

Category 5. Directive statements or questions. These are teacher-statements or questions which advise the learner regarding a course of action or his future behavior; they either narrowly limit his choice or offer no choice. These statements recommend to the learner the facts or procedures that the teacher proffers him. These statements or questions convey the impression to the learner that the teacher expects and hopes that he will follow her prompting and that she will approve if he does. The *dominant intent* of these responses is to have the learner take up the teacher's point of view and pursue a course of action that she advocates.

Category 6. Reproving, disapproving or disparaging statements or questions. By means of these statements a teacher may express complete or partial disapproval of the ideas, behavior and personality foibles of the learner. The teacher's internalized societal values largely enter into these responses. By means of these statements some teachers believe they are fulfilling their responsibility of inculcating in young people society's standards of acceptable behavior and achievement. The *dominant intent* of these statements is: a) to represent to the learner societal values as the teacher perceives them, b) to admonish the learner for unacceptable behavior and to deter him from repeating it in the future, c) to impress on the learner the fact that he has not met the criteria for successful achievement which the teacher sets up.

Category 7. Teacher-supportive statements or questions. These are statements or questions in which the teacher refers to himself and expresses a defensive attitude, or refers to his present or past interests, activities, or possessions with the purpose of reassuring himself and of confirming his position or his ideas in the eyes of those around him. The *dominant intent* of these teacher-responses is to assert, to defend or to justify the teacher. Statements in which the teacher perseverates on an idea, a belief or a suggestion fall into this category. By "per-

severate" we mean a persisting in and a reiteration of an idea or opinion despite additional data which calls for a re-examination of the original idea or opinion.

The reliability of the instrument was tested by the application of several statistical procedures to data drawn from several classes. An r of .90 was obtained by a split-half check on a sample of 271 statements obtained from a classroom session of one teacher. By means of the tetrachoric correlation coefficient statistic (using Thurstone's computing diagrams), further evidence of reliability was obtained on the categorizations of five judges who independently categorized 68 statements of teacher A, 71 of teacher B, and 45 of teacher C. For these independent categorizations a median r^{tet} of .84 was obtained on the categorizations of teacher A's statements, a median r^{tet} of .76 was obtained in categorizing teacher B's statements and a median r^{tet} of .93 was achieved on teacher C's statements. Furthermore the mean percentage of agreement between four judges and the researcher on independent categorizations of 184 statements was 65 per cent, with a range of 53 to 77 per cent.

The instrument's validity was tested by use of a criterion instrument (H. H. Anderson's Dominative-Integrative Categories²), by means of a teacher-characteristics rating scale developed by the researcher, and by means of a controlled experiment³ using three procedures for assessing climate. Additional evidence of the validity and reliability of the Social Emotional Climate Index resides in the fact that it was used to assess the stability of the social-emotional climate as an independent variable in two doctoral studies⁴ completed in the Department of Education of the University of Chicago.

The statements of a teacher can be viewed, therefore, as forming a pattern of verbal behavior which gives evidence of the affect,

² H. H. Anderson and Joseph E. Brewer, *Studies of Teachers' Classroom Personalities*, Stanford University, California: Stanford University Press, 1946 (Applied Psychology Monograph. No. 8).

³ H. A. Thelen and John Withall, "Three Frames of Reference: A Study of Climate," *Human Relations*, II No. 2 (1949).

⁴ Hugh Perkins, "The Effects of Social-Emotional Climate and Curriculum on Group Learning of In-Service Teachers," Ph.D. Thesis, Department of Education, University of Chicago, 1949. Ned Allen Flanders, "Personal-Social Anxiety as a Factor in Experimental Learning Situations," Ph.D. Thesis, Department of Education, University of Chicago, 1949.

the focus of concern, and the problem-centeredness of the teacher and of the class.

In the course of a school day, pupils come under the surveillance of several instructors teaching various subjects. Do youngsters as they move from one class to the next encounter differing psychological climates? Do those climates differ appreciably one from another? These are the questions with which this study attempts to deal.

A group of seventh grade youngsters in the Laboratory School of the University of Chicago were followed through eighteen regular class sessions. These sessions were conducted by four different teachers whom we shall simply label as teachers 1, 2, 3, and 4. Each teacher's statements in each class session were categorized in terms of the criteria of the Social-Emotional Climate Index. Teacher 1 taught social science, teacher 2 taught English, teacher 3 science, and teacher 4 mathematics. Four sessions of the social science class were observed, six of the English class, six of the science class, and two of the mathematics class. The observations were made from February 3 through February 11 and confined to morning sessions only.

The distribution of teacher-statements among the seven categories of the Climate Index from day to day gave a pattern of statements for each teacher for each class period. A mean pattern for each teacher was derived from the categorizations of her several class sessions; in addition a composite mean was computed for all four teachers based on the entire eighteen sessions. Table 1 presents the pattern of statements for each teacher for each class period observed. Table 2 shows the mean pattern for each teacher and a composite mean for the four teachers.

To ascertain the significance of the differences in the mean percentages for each of the teachers in each of the seven categories in turn, the percentages presented in Table 2 were treated by the statistic;⁵

$$X = \frac{\frac{t_1}{n_1} - \frac{t_2}{n_2}}{e \sqrt{p_o q_o \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

⁵ Palmer O. Johnson, *Statistical Methods in Research*, New York: Prentice-Hall, 1949, p. 80-81.

TABLE 1

RESPECTIVE PERCENTAGES OF FOUR TEACHERS' STATEMENTS FALLING INTO EACH OF SEVEN CATEGORIES OF THE CLIMATE INDEX

| Teacher | Date | No. of statements | PER CENT | | | | | | |
|---------|---------|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | Cate- gory 1 | Cate- gory 2 | Cate- gory 3 | Cate- gory 4 | Cate- gory 5 | Cate- gory 6 | Cate- gory 7 |
| 1 | 4 Feb. | 42 | 19 | 2 | 14 | 12 | 17 | 26 | 10 |
| 1 | 5 Feb. | 66 | 20 | 3 | 24 | 12 | 27 | 8 | 6 |
| 1 | 6 Feb. | 82 | 10 | 1 | 23 | 18 | 11 | 25 | 12 |
| 1 | 11 Feb. | 51 | 8 | 4 | 22 | 21 | 14 | 25 | 6 |
| 2 | 3 Feb. | 33 | 9 | 3 | 24 | 28 | 21 | 15 | 0 |
| 2 | 4 Feb. | 103 | 8 | 4 | 54 | 13 | 16 | 4 | 1 |
| 2 | 6 Feb. | 63 | 6 | 10 | 44 | 16 | 19 | 5 | 0 |
| 2 | 9 Feb. | 22 | 0 | 5 | 18 | 32 | 27 | 18 | 0 |
| 2 | 10 Feb. | 134 | 10 | 8 | 51 | 9 | 11 | 8 | 3 |
| 2 | 11 Feb. | 42 | 9 | 5 | 67 | 12 | 2 | 0 | 5 |
| 3 | 3 Feb. | 88 | 12 | 5 | 33 | 11 | 15 | 15 | 9 |
| 3 | 4 Feb. | 91 | 12 | 1 | 39 | 11 | 9 | 12 | 16 |
| 3 | 6 Feb. | 95 | 5 | 1 | 39 | 18 | 19 | 12 | 6 |
| 3 | 9 Feb. | 113 | 4 | 5 | 37 | 28 | 18 | 4 | 4 |
| 3 | 10 Feb. | 40 | 3 | 3 | 30 | 20 | 17 | 15 | 12 |
| 3 | 11 Feb. | 75 | 3 | 4 | 37 | 19 | 15 | 13 | 9 |
| 4 | 5 Feb. | 79 | 16 | 5 | 41 | 6 | 18 | 10 | 4 |
| 4 | 6 Feb. | 45 | 2 | 5 | 38 | 9 | 15 | 27 | 4 |

In each of the seven categories the significance of the difference between the percentages of each teacher compared with each other teacher in turn was computed. The result was six pairings or comparisons between the percentages of the four teachers in each category. In category 1, for example, the percentage in the case of teacher 1 was compared in turn with the percentage of teacher 2, 3, and 4; then the percentage of teacher 2 was compared with

TABLE 2

MEAN PERCENTAGES OF STATEMENTS OF EACH OF FOUR TEACHERS IN THE SEVEN CATEGORIES OF THE CLIMATE INDEX

| Teachers | No. of class sessions | No. of statements | MEAN PER CENT | | | | | | |
|----------------|-----------------------------|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | Cate- gory 1 | Cate- gory 2 | Cate- gory 3 | Cate- gory 4 | Cate- gory 5 | Cate- gory 6 | Cate- gory 7 |
| 1 | 4 | 241 | 14 | 3 | 21 | 16 | 17 | 21 | 8 |
| 2 | 6 | 397 | 7 | 6 | 43 | 18 | 16 | 9 | 1 |
| 3 | 6 | 502 | 6 | 3 | 36 | 18 | 15 | 12 | 10 |
| 4 | 2 | 124 | 9 | 5 | 39 | 7 | 17 | 19 | 4 |
| Composite Mean | | 1264 | 9 | 4 | 35 | 15 | 16 | 15 | 6 |

teacher 3 and 4 in turn; finally the percentage of teacher 3 was compared with that of teacher 4. Forty-two pairings thus resulted. Pairings in which significant differences beyond the .01 level of confidence were found are set forth in Table 3. In the comparisons where no significant differences occurred a dash is entered.

TABLE 3
SIGNIFICANCE OF DIFFERENCES BETWEEN PERCENTAGES IN EACH CATEGORY

| Teachers | CATEGORY | | | | | | |
|----------|----------|-----|-----|-----|---|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 and 2 | .01 | — | .01 | — | — | .01 | .01 |
| 1 and 3 | .01 | — | .01 | — | — | .01 | — |
| 1 and 4 | — | — | .01 | .01 | — | — | — |
| 2 and 3 | — | .01 | — | — | — | .01 | .01 |
| 2 and 4 | — | — | — | .01 | — | — | .01 |
| 3 and 4 | — | — | — | .01 | — | .01 | — |

In offering the ensuing evaluations of the climate in the sessions observed certain assumptions related to client-centered therapy were made. One of these assumptions is that by certain kinds of verbal behavior, e.g., acceptant and clarifying statements, the teacher creates a psychological atmosphere which tends to dissipate the learner's perception of ego-threat and frees him to reformulate his tensions and bring about a reorganization of his perceptual field so that it accords more closely with objective reality. Another assumption is that individuals are able to solve their problems by themselves if they are helped and permitted to do so; still another assumption is that the basic drive of the individual is towards self-realization and self-actualization; a further assumption is that through self-directive behaviors self-realization is most likely to be achieved. Consistent with these assumptions certain value-judgments are made about interpersonal relationships, e.g., that a dependency relationship is undesirable, that giving opportunities to the learner for free choice is desirable, that the verbal expression of understanding by the teacher facilitates problem-solving, and so on.

The procedure used in the following interpretations of each of the mean patterns of statements for the four teachers will be to take each category in turn and assess the social-emotional climate in terms of the affect, focus of concern, and objectivity of the teacher's verbal behavior.

INTERPRETATIONS OF MEAN PATTERN OF STATEMENTS

Teacher 1 seems to be a person in whom concern about herself⁶ is greater than her concern either with the problem or with the learner. This teacher evidences self-concern by using a large percentage of reproving (category 6) statements; in addition to this there is evidence of a tendency to limit choices of action by the learners and to delimit the situation rather considerably. The pupils might react with some hostility to this kind of limiting and self-concerned behavior by the teacher and might employ behaviors to sustain and justify themselves in the face of the teacher's own self-supportive and self-concerned behavior. Teacher 1 uses more than the average⁷ number of category 7 statements. The total proportion of teacher 1's self-centered verbalizations might well interfere with satisfactory pupil-teacher communication and with the pupils' ability to relate themselves to her and to the objective problem. The paucity of the teacher's problem-structuring comments in the total pattern and the somewhat less than average proportion of category 2 statements tends to show that the orientation of the teacher and hence that of the pupils to the objective problem would be limited. Teacher 1 may have come to realize that something was interfering with the problem-solving activities of the learners and may have decided to try to facilitate that activity by a goodly proportion of learner-supportive (category 1) comments since an above-average number of those statements is utilized by this teacher.

Teacher 1 might be described, on the basis of this verbal categorization, as an instructor who assumes considerable responsibility for the direction of the behavior and the control of the activities of the learners in her class. Accompanying this tendency seems to be a parallel tendency to evaluate the learner's activities in terms of the teacher's private criteria. Since the private criteria of the teacher were the gauge by which pupils' behaviors were

⁶ The feminine pronouns are used throughout regardless of the sex of the teacher. Actually the four teachers comprised two women and two men.

⁷ The word "average" is used to denote the composite mean of the four teachers.

evaluated and since those criteria were implicit and private rather than explicit and public, the pupils tended not to meet the teacher's standards. Hence it is possible that the teacher would be impelled to use a large percentage of reproofing comments because the pupils consistently fell short of the goals and standards she had erected. One might expect that this teacher would find it difficult to achieve much rapport with the learners, as is evidenced by the limited amount of verbalization expressing comprehension of the learner's purposes and needs.

Teacher 2, on the other hand, tries to help the learners to keep highly oriented to the objective problem, as evidenced by the fact that 43 per cent of her statements fall into category 3. This kind of problem-structuring might conceivably help elucidate the problem to the learners and might help them to visualize a wide range of action possibilities. The combination of considerable problem-orientation and an above average expression of understanding of the pupils' purposes and interests might conceivably further enhance the pupils' problem-solving activities. This teacher utilized slightly more than an average proportion of directive (category 5) statements in structuring the problem. Because of the larger proportion of pure problem-structuring comments (category 3) relative to the proportion of directive statements (category 5), it seems likely that the pupils' attack on the objective problems would not be greatly interfered with by the teacher's hortative comments. Since the teacher did not utilize very many commendatory⁸ remarks (category 1) it may be that the students were helped to develop some competence in evaluating their own achievement; this supposition tends to be borne out by the fact that teacher 2 also used somewhat fewer reproof (category 6) statements compared with the other teachers. The small proportion of both reproofing and self-sustaining remarks (category 7) by teacher 2—nine per cent and 1 per cent respectively—suggests that interpersonal conflicts might be minimal in the classroom since the behaviors (categories 6 and 7)

⁸ When teacher 2 and the experimenter discussed the analysis of her classroom verbalization she stated that at least one student had approached her and complained that she seldom praised or commended the class for work well done. The student was new to the school and opened up the question by stating that she understood that in this school kids were allowed to express their opinions to the teachers very freely so she was taking the opportunity to do so about the lack of praise.

that represent psychological threat and attack to the learner are minimal in the teacher's behavior pattern.

Teacher 2 is one whose orientation to the objective problem seems considerable if we take the relatively high percentage of statements (43 per cent) falling into category 3 as evidence of problem-centeredness by the teacher. This teacher would probably assume some responsibility for directing the behavior choices of the learners as is evidenced by the average percentage (16 per cent) of category 5 statements. Yet this teacher would likely leave a large measure of responsibility to the learners for evaluating their own progress and achievement; the basis for this inference is the fact that she used less than the average proportion of both "positive" (category 1) and "negative" (category 6) evaluative comments. Her attempts to understand and appreciate the learners' needs and goals seem somewhat greater than that of the other teachers. Her self-concern seems minimal in the learning situation to judge by the small proportion (1 per cent) of self-justifying statements (category 7) that she utilized.

Teacher 3's verbal behavior seems to show that her major concern is with the problem; this is evidenced by the fact that 36 per cent of her total pattern of statements are problem-structuring remarks. This is about the same as the average of the four teachers. It is likely that the problem-centeredness of the teacher would facilitate the problem-solving of the learners. On the one hand, the teacher's behavior might induce some dependency on her by her use of an average number of directive remarks; yet there is some evidence that she does not encourage a dependency relationship but rather actually tries to help the learners to evaluate their own successes and failures. This latter may be inferred from the relatively small proportion of both "positive" evaluations (category 1, 6 per cent) and "negative" evaluations (category 6, 12 per cent). This teacher demonstrates somewhat less than average ability to verbalize her understanding of the pupils' interests and purposes if we judge by the below average percentage of category 2 statements. This teacher gives more verbal evidence of a need for self-justification than any of the other four teachers; this is evidenced by the 10 per cent of category 7 statements, nearly twice the average percentage. In this classroom the pupils would probably be helped in their

problem-solving activities by the teacher's problem-structuring remarks which are accompanied by some limiting of their choices by directive comments.

Teacher 3 shows an average tendency (36 per cent) towards problem-structuring coupled with an average tendency towards assuming direction of the learners' problem-solving by offering hortative comments. Yet she shows some interest in helping the pupils to become competent in evaluating their own progress and achievement, as is evidenced by her less than average use of "positive" (category 1) and "negative" (category 6) evaluative statements. At the same time we have here a teacher who utilizes a little less than the average proportion of clarifying and acceptant statements (category 2). Alongside of this less than average use of category 2 statements is a more than average use of self-supportive (category 7) comments. Teacher 3 would facilitate, it is possible, the pupils' problem-solving activities by her problem-structuring remarks. However, her relatively few expressions of understanding and her evidenced need for self-justification might tend to militate against effective problem-solving. Nonetheless she appears to be trying to encourage the learners to develop some ability to assess and evaluate their achievements in terms of their own criteria.

Teacher 4's verbal behavior comprises a large proportion of problem-structuring statements with 39 per cent of her remarks falling into category 3. This problem-centeredness of the teacher might help the pupils to identify the problem elements in the situation and to utilize problem-solving behaviors with some skill. The teacher seems to assume considerable responsibility for directing the learners' activities (category 5). This assumption of responsibility by the teacher is evidenced by the slightly more than average proportion of directive statements. The percentage of reproof statements (19 per cent) by teacher 4 is somewhat greater than the average and might conceivably engender hostility between pupil and teacher. This teacher tends, however, to use somewhat less than the average proportion of self-supportive (category 7) remarks and it is possible that this would tend to mitigate the tendency towards self-concern roused in the learners. The teacher's expression of her understanding of the learners' interests and needs (category 2) is just above average and might also tend to help

minimize some of the forces in the situation towards inter-personal conflict.

Teacher 4 gives evidence of a greater than average tendency to indulge in negative evaluative comments (category 6) regarding the learners' behaviors. This tendency is revealed in the slightly above average percentage (19 per cent) of her statements falling into category 6. This teacher appears to have a somewhat more than average ability to structure (category 2) the problem adequately. Her degree of understanding of the pupils seems about average to judge by the percentage (5 per cent) of category 2 statements. This understanding is complemented by a less than average (4 per cent) tendency to utilize self-supportive (category 7) remarks. This particular teacher's pattern of verbal behavior is interesting in that she uses few neutral statements when compared with the pattern of the four teachers under consideration.

Overall Evaluation of All Four Teachers on the Basis of Each Teacher's Mean Compared with the Composite Mean or Average

Teachers 2 and 3 utilized fewer category 1 statements than teachers 1 and 4. Teacher 1 utilized a slightly larger proportion of commendatory statements than the other three. Teacher 4 utilized an average number of reassuring comments. Teachers 2 and 4 used a slightly larger proportion of clarification and acceptant statements than teachers 1 and 3. Of the total number of statements utilized by teachers 2 and 4, 43 and 39 per cent, respectively, comprised problem-structuring remarks; in the case of teachers 1 and 3, 21 and 36 per cent, respectively, of the total were problem-structuring comments. Teachers 1, 2 and 3 were slightly above average in their use of statements falling into the neutral category (category 4). Teacher number 4 had but 7 per cent compared with over double that percentage for the other teachers. All four teachers showed a very similar pattern with respect to the use of directive statements to the learners. Teachers 2 and 3 used fewer (9 to 12 per cent) reproof statements than teachers 1 and 4. Fewer self-supportive responses (category 7) were used by teachers 2 and 4 compared with teachers 1 and 3.

Teacher 3 employed fewer learner-supportive and approving

statements than the other three teachers. Teacher 1 utilized fewer category 2 statements than did the others. Teacher 2 utilized more category 3 statements than the other three teachers. The smallest number of category 4 statements was used by teacher 4. Though all four teachers used approximately the same proportion of directive statements, teacher 1 used slightly more than the other three. Teacher 2 used the lowest proportion of reproving statements of the four teachers studied. Teacher 2 used the smallest proportion of category 7 statements.

CONCLUSION

It would appear from the data that this group of seventh grade youngsters encountered differing psychological climates as they moved from class to class. It also seems evident that the differences between the climates created by different teachers were quite appreciable. At the same time, though variations in the climate created by the same teacher from day to day are apparent, there appears to be some consistency in the kind of atmosphere the same teacher creates in her classroom over a period of time. Questions relevant to these findings that need investigation include the following:

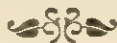
1. How much psychological adjustment does a pupil have to make from class to class?
2. What tensions are aroused in the pupils in making these adjustments?
3. What variables besides the teachers' behaviors influence the classroom climate?

NORMAN E. GRONLUND

Relationship Between Sociometric Status of Pupils and Teachers' Preferences for Having Them in Class

What kind of pupils does the teacher prefer to have in his class group? This question is not merely an academic one. In every class there is likely to be a wide range of sociometric status. That is, some children enjoy a high degree of social acceptance by their peers; others tend to be "rejected." Does the teacher prefer the same children who are preferred by their peers? If so, what may be the consequences for the low-sociometric-status child?

Professor Norman E. Gronlund's study inquires into the relationship between the teacher's preferences for pupils and the extent to which pupils are socially valued by their peers. It provides a possible answer to our initial question. Although the educational implications of the findings are not discussed, the interested student should consider what they might be.



There is increasing evidence that the number of choices children receive on a sociometric test is related to their social adjustment in the classroom. Several studies (1,2,4,5) have shown that pupils who receive the largest number of choices are frequently described by their classmates as being friendly, cheerful, enthusiastic, and possessing other behavior characteristics which are generally

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considered to be socially desirable. Those receiving few or no choices are often identified by their classmates as pupils who have socially ineffective behavior characteristics which interfere with their social adjustment among peers.

This relationship between the number of choices received on a sociometric test and significant behavior characteristics is not limited to peer evaluations. A study by Olson (6) has revealed that there is a similar relationship between the number of choices pupils receive on a sociometric test and the teachers' evaluations of their behavior. In general, those pupils receiving the largest number of choices were characterized by the teachers as being good-natured, quiet, friendly, well adjusted and dependable; while those receiving fewer choices were characterized as being shy, bossy, sulky, ill, conduct problems, or new to class. These studies tend to show that the sociometric test is measuring significant aspects of behavior and the teachers' evaluations of that behavior are similar to the evaluations by the pupils. In light of these findings it would seem important to determine the extent to which teachers prefer the same pupils that the class members prefer. This should provide some additional insights into the relationship between pupil-pupil adjustment and pupil-teacher adjustment.

Specifically, this study is an attempt to determine the relationship between teachers' preferences for or against having certain pupils in class and the number of choices those pupils receive on a sociometric test.

METHOD OF INVESTIGATION

The data for this study were collected in connection with a previous investigation.* A sociometric test was administered to forty sixth-grade classes during the latter part of May. In each class the pupils were asked to choose the five classmates whom they would most prefer as work companions, play companions and seating companions. In the same forty classes each teacher was requested to

* For a detailed description of the instruments used, subjects participating, and method of collecting data see Norman E. Gronlund, *The Accuracy of Teachers' Judgments Concerning the Sociometric Status of Sixth-Grade Pupils*. Sociometry Monographs, No. 25, New York: Beacon House Inc., 1951, pp. 62.

choose the three boys and three girls she most preferred as pupils in class, and the three boys and three girls she least preferred as pupils in class. These preferences were to be based entirely on how much the teacher did, or did not, enjoy having them as pupils in her class.

There were 1,258 pupils in the forty sixth-grade classes. Of these, 632 were boys and 626 were girls. All of the teachers in this study were women.

RESULTS OF THE SOCIOMETRIC TESTING

The sociometric results were analyzed by counting the number of choices each pupil received on the sociometric test. Each choice was given a value of one regardless of criterion or level of choice. In the process of tabulation the number of cross-sex choices was noted. Since only eight per cent of the boys' choices went to girls and seven per cent of the girls' choices went to boys, it was decided to present the sociometric results separately for boys and girls.

The distribution of sociometric choices for all forty sixth-grade classes is presented in Table I. The method of classifying the groups into isolates, neglectees, low average, high average, and stars is based on Bronfenbrenner's fixed frame of reference (3). He has shown that fifteen choices is the expected value where five choices are allotted for each of three criteria. In this sociometric setting he has further shown that nine choices or less, and twenty-two choices or more, is to be expected by chance less than two times in a hundred. It was decided that the use of these limits of statistical significance would be more meaningful, for the purposes of this study, than making arbitrary divisions.

An examination of Table I reveals that the percentage of pupils falling into each category is approximately the same for boys and girls. The large percentage of pupils in the neglectee category is a normal phenomenon in sociometric testing. Although it is not revealed in this table, the pupils in each classification were fairly well distributed among the forty classes. There were thirteen classes with boys identified as isolates (unchosen) and sixteen classes with girls in the same category. All of the classes had pupils in the neglectee classification and thirty-eight of the classes contained pupils classified as stars.

TABLE I

DISTRIBUTION OF BOYS AND GIRLS IN 40 SIXTH-GRADE CLASSES ON THE BASIS OF THE NUMBER OF CHOICES RECEIVED ON THE SOCIOMETRIC TEST

| <i>Number of sociometric choices received</i> | BOYS | | GIRLS | |
|---|------------------|-----------------------------------|------------------|-----------------------------------|
| | <i>Frequency</i> | <i>Per cent by classification</i> | <i>Frequency</i> | <i>Per cent by classification</i> |
| | | Isolates (unchosen) | | Isolates |
| 0 | 14 | 2 | 21 | 3 |
| 1-3 | 62 | Neglectees | 53 | Neglectees |
| 4-6 | 83 | 36 | 83 | 35 |
| 7-9 | 80 | | 82 | |
| 10-12 | 81 | Low-Average | 79 | Low-Average |
| 13-15 | 69 | 24 | 69 | 24 |
| 16-18 | 68 | High-Average | 70 | High-Average |
| 19-21 | 47 | 18 | 36 | 17 |
| 22-24 | 43 | | 42 | |
| 25-27 | 25 | | 24 | |
| 28-30 | 21 | | 29 | |
| 31-33 | 14 | Stars | 12 | Stars |
| 34-36 | 10 | 20 | 8 | 21 |
| 37-39 | 7 | | 8 | |
| 40-42 | 3 | | 3 | |
| 43-up | 5 | | 7 | |
| TOTAL | 632 | 100 | 626 | 100 |

RELATIONSHIP BETWEEN SOCIOMETRIC RESULTS AND TEACHERS' PREFERENCES

Since the forty teachers were requested to choose the three boys and three girls they most preferred as pupils in class, and the three boys and three girls they least preferred as pupils in class, each teacher could choose only twelve pupils. Consequently, 480 pupils, or approximately 38% of the total pupil population, were included in the teachers' preferences.

To determine if there was a relationship between the teachers' preferences and the number of choices received on the sociometric test the data were analyzed in the following manner. In the forty

sixth-grade classes the number of choices received on the sociometric test were averaged separately for boys and girls in each of the preference groups. The average number of choices received by the 120 pupils in each preference group is referred to as their mean sociometric status.

An examination of Table II reveals that the mean sociometric status of those pupils most preferred by the teachers is more than double the mean sociometric status of those pupils least preferred by the teachers. An application of the Fisher T-test has shown that these differences between preference groups are significant for both boys and girls. A further analysis of Table II will reveal that the

TABLE II

COMPARISON OF THE MEAN SOCIOMETRIC STATUS OF THE
THREE MOST PREFERRED AND THE THREE LEAST PREFERRED
BOYS AND GIRLS IN 40 SIXTH-GRADE CLASSES

| | <i>N</i> | MEAN SOCIOMETRIC STATUS | |
|-------|----------|---------------------------------------|--|
| | | <i>Most preferred by teachers</i> | <i>Least preferred by teachers</i> |
| Boys | 120 | 21 | 9 |
| Girls | 120 | 22 | 9 |

mean sociometric status of boys and girls is almost identical in the most preferred group and is identical in the least preferred group. This is somewhat surprising since it has been shown by Tryon (7) that, at this age level, girls are more apt to achieve their peer status on the basis of behavior characteristics that are appealing to teachers, while boys are more likely to achieve their status through aggressive, boisterous behavior which does not conform to teachers' standards of desirable behavior. On the basis of her findings it would be expected that the teachers' preferences would be more closely related to the sociometric status of girls than to that of boys. These data are inconsistent with that hypothesis.

Since there is a relationship between the sociometric status of pupils and the teachers' preferences it would appear valuable to make a further analysis of that relationship. In Table III the sociometric classification of pupils most and least preferred by the teachers is compared, and related to the sociometric classification of all pupils taking the test. It will be noted, in this table, that the distribution of pupils on the basis of the teachers' preferences is similar

for boys and girls. The most revealing finding, however, may be obtained by comparing the relative number of most and least preferred pupils in each sociometric classification. Only eleven per cent of the boys and girls *most preferred* by the teachers are classified as isolates or neglectees while approximately half of them are classified as stars. In contrast, between fifty-six and fifty-eight per cent of the boys and girls *least preferred* by the teachers are isolates or neglectees and only a small per cent fall in the star category.

TABLE III

RELATIONSHIP BETWEEN THE DISTRIBUTION OF BOYS AND GIRLS ON THE BASIS OF THE SOCIOMETRIC TEST AND THE DISTRIBUTION OF BOYS AND GIRLS ON THE BASIS OF THE TEACHERS' PREFERENCES IN 40 SIXTH-GRADE CLASSES

| Group | N | PER CENT | | | Stars |
|-------------------------------------|-----|--------------------------------------|------------------------|-------------------------|-------|
| | | <i>Isolates & Neglectees</i> | <i>Low Average</i> | <i>High Average</i> | |
| All Boys | 632 | 38 | 24 | 18 | 20 |
| Boys Most Preferred by Teacher | 120 | 11 | 19 | 23 | 47 |
| Boys Least Preferred by Teacher | 120 | 56 | 28 | 13 | 3 |
| All Girls | 626 | 38 | 24 | 17 | 21 |
| Girls Most Preferred by Teacher | 120 | 11 | 18 | 20 | 51 |
| Girls Least Preferred by Teacher | 120 | 58 | 24 | 14 | 4 |

The tendency for teachers' preferences to be related to the pupils' choices on the sociometric test is even more pronounced than is revealed in Table III. Some of the classes had less than three boys and three girls in the isolate and neglectee classification and some had less than three boys and three girls in the star classification. Consequently, there were fewer pupils available in these categories than there were choices allotted to teachers. This forced some of the teachers' preferences into the average category.

To compensate for the above tendency it was decided that an analysis, based on the number of pupils available in each sociometric classification, would be meaningful. The following three tables reveal the number of pupils available for the teachers' prefer-

ences in each category, and the number and per cent that are most and least preferred by the teachers.

It will be noted in Table IV that none of the isolates were *most preferred* by the teachers, but approximately one-third of them were *least preferred*. It appears that the lack of acceptance these pupils experience among their classmates is similar to their lack of acceptance by teachers. It is not surprising that approximately two-thirds of the isolates were neither most nor least preferred by their teachers. A clinical study (5) of the personality traits of children in the lowest sociometric group has shown that a large proportion of them are quiet, retiring children who attract neither positive nor negative attention in the classroom.

TABLE IV
PERCENTAGE OF ISOLATES MOST AND LEAST PREFERRED BY TEACHERS
IN 40 SIXTH-GRADE CLASSES

| | Number available for teachers' preferences | Most preferred by teachers | | Least preferred by teachers | |
|-------|--|-------------------------------|----------|--------------------------------|----------|
| | | Number | Per cent | Number | Per cent |
| Boys | 14 | 0 | 0 | 5 | 36 |
| Girls | 21 | 0 | 0 | 8 | 38 |
| Total | 35 | 0 | 0 | 13 | 37 |

Table V reveals that only eleven per cent of those neglectees available for teachers' preferences were *most preferred* by the teachers, while fifty-eight per cent were *least preferred*. Although there is a strong tendency here for the teachers' preferences to agree with the sociometric choosing it seems possible for a minority of pupils to attain satisfactory relationships with their teachers even though they have relatively little status among their classmates. There could be

TABLE V
PERCENTAGE OF NEGLECTEES MOST AND LEAST PREFERRED BY TEACHERS
IN 40 SIXTH-GRADE CLASSES

| | Number available for teachers' preferences | Most preferred by teachers | | Least preferred by teachers | |
|-------|--|-------------------------------|----------|--------------------------------|----------|
| | | Number | Per cent | Number | Per cent |
| Boys | 117 | 13 | 11 | 67 | 57 |
| Girls | 116 | 13 | 11 | 69 | 59 |
| Total | 233 | 26 | 11 | 136 | 58 |

several possible explanations for this phenomenon. First, the teachers made their preferences on the basis of their general reaction to the pupils while the pupils based their choices on specific criteria. Second, the value systems of teachers and pupils differ in respect to what is desirable behavior in children. Specifically, a relatively quiet, mild-mannered child may not attract a large number of friends, but his behavior could be very appealing to the teacher. Third, a pupil's relationship with his teacher may be the cause of his low status among his classmates. An extreme example of this would be the "teacher's pet," whereby excessive attention from the teacher could cause him to lose status among his fellow pupils. There may be other possible explanations to account for the teachers most preferring some of the pupils who received relatively few choices on the sociometric test. Further investigation would be needed to provide definite answers.

Table VI presents the percentage of stars most and least preferred by the teachers. It can readily be seen that very few stars are *least preferred* by the teachers. In contrast, sixty per cent of them are *most preferred*. Children who receive enough choices on the sociometric test to classify them as stars apparently have behavior characteristics that attract the favorable attention of teachers as well as that of their peers. The relatively few that were least preferred may well be pupils that achieved their sociometric positions through aggressive behavior which did not conform to the teacher's standards of classroom conduct. It is easy to visualize how such behavior could attract positive reactions from a number of classmates, and at the same time bring forth negative reactions from the teachers. This would be especially probable where the teacher was not too well accepted by a majority of the class members.

TABLE VI
PERCENTAGE OF STARS MOST AND LEAST PREFERRED BY TEACHERS
IN 40 SIXTH-GRADE CLASSES

| | <i>Number available for teachers' preferences</i> | <i>Most preferred by teachers</i> | | <i>Least preferred by teachers</i> | |
|-------|---|---------------------------------------|-----------------|--|-----------------|
| | | <i>Number</i> | <i>Per cent</i> | <i>Number</i> | <i>Per cent</i> |
| Boys | 96 | 57 | 59 | 4 | 4 |
| Girls | 100 | 61 | 61 | 5 | 5 |
| Total | 196 | 118 | 60 | 9 | 4.5 |

SUMMARY AND FINDINGS

This study was an attempt to determine the relationship between the sociometric status of pupils and the teachers' preferences for or against having them in class. A sociometric test allotting five choices for each of three criteria was administered to forty sixth-grade classes. In the same classes each teacher was requested to choose the three boys and the three girls she most and least preferred. An analysis and comparison of the data revealed the following findings.

1. The pre-adolescent sex cleavage was very evident in the sociometric choosing. Only eight per cent of the boys' choices went to girls and seven per cent of the girls' choices went to boys.

2. The distribution of the 632 boys was very similar to the distribution of the 626 girls on the sociometric test. On the basis of the number of choices received, between two and three per cent of the pupils were classified as isolates, between thirty-five and thirty-six per cent were classified as neglectees, between twenty and twenty-one per cent were classified as stars, and between forty-one and forty-two per cent were in the average category.

3. There is a significant difference between the sociometric status of those pupils the teachers *most prefer* and those pupils the teachers *least prefer*. This difference is in the direction of a higher sociometric status by those pupils in the most preferred group.

4. There is *no* significant difference between the sociometric status of boys and the sociometric status of girls most preferred by the teachers. There is, likewise, *no* significant difference between the sociometric status of boys and the sociometric status of girls least preferred by the teachers.

5. Approximately half of those pupils *most preferred* by the teachers were in the star category on the basis of the sociometric choosing. None were classified as isolates and only eleven per cent were in the neglectee classification.

6. Of those pupils *least preferred* by the teachers more than half were classified as isolates or neglectees on the basis of the sociometric test. Less than four per cent were in the star category.

These findings reveal that there is a general tendency for teach-

ers to most prefer those pupils that are highly chosen on the sociometric test and to least prefer those pupils that receive relatively few choices. This would seem to indicate that the number of choices received on a sociometric test reflects significant aspects of behavior which not only determines a pupil's acceptance by his peers but also his acceptance by teachers with whom he comes in contact. It is hoped that further studies in this area will reveal those behavior characteristics, related to sociometric status, that contribute to teacher-pupil adjustment as well as to pupil-pupil adjustment.

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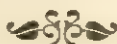
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RALPH H. OJEMANN AND
FRANCES R. WILKINSON

The Effect on Pupil Growth of an Increase in Teachers' Understanding of Pupil Behavior

The four studies that precede this one indicate (1) that teachers are not so accurate as they might be in their understanding of children, (2) that different teachers help to create different psychological climates in their classrooms, and (3) that the teacher's habitual way of perceiving his pupils has marked effect upon his ability to see them as they are. Do these conditions influence the level of classroom achievement? This is a key question, since it relates directly to the educational purposes of the teacher.

Professors Ralph H. Ojemann and Frances R. Wilkinson have approached this question experimentally. They have tested their hypothesis that there is a direct relationship between the level of a child's school achievement and the degree to which the teacher is able and willing to see him as an individual entity.



It is clear that effective learning cannot take place unless a strong motive is present. It is equally clear that it is difficult to motivate a child whose energies are spent worrying about in-school or out-of-school situations or whose wants at the moment are of such

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a character that the work in school does not seem to contribute to his wants. If the teacher does not know that perhaps John is worrying about getting to his street corner on time to sell his papers, or that he does not take part in class discussions because of a feeling of inferiority, or that he is worried about his home, she is not likely to succeed in stimulating John to do his best. On the other hand knowing the child's attitude, conflicts, and purposes should make the teacher a better guide in planning an effective program of work for him.

Furthermore, if the development of personality in its various aspects were closely watched by the teacher it would appear highly probable that the beginnings of behavior difficulties could be detected long before the difficulties emerge as serious behavior problems. Teachers and administrators long ago learned that it is impossible to direct the child's growth in school subjects without careful and frequent checks on the progress the pupil is making. Numerous formal and informal tests and other diagnostic devices are used by teachers and administrators to determine growth in the subject matter areas. Teachers are trained to revise their teaching procedures in the light of pupils as determined by such methods.

In the area of personality growth, however, the situation is quite different. The present tendency in schools is to wait until some "maladjustment" or "behavior problem" appears. Then, but usually not before, personality growth becomes a matter of concern. And it is the "problem child" that becomes the center of emphasis. This tendency to wait until the child gets into difficulty before giving attention to personality growth appears analogous to waiting until the pupil has failed on a final examination before giving consideration to his growth in knowledge. Neither course of action is logical. It would seem that if the classroom teacher had at hand information about the child's personality and were trained to follow the development of personality in its several aspects, just as she follows the course of growth in reading, spelling, or history she could detect the beginnings of behavior problems and redirect development long before the deviations become serious. Thinking only in terms of problem children is not adequate for effective guidance.

The foregoing suggestions, namely, that learning becomes more effective and that the development of personality can be more adequately controlled if a careful analysis of behavior is made by the

teacher, are in the nature of assumptions. The study reported in this paper was designed to test experimentally the two assumptions.

The general method of the study consisted in selecting an experimental and control group, obtaining measurements of both groups at the beginning of the experimental period, assisting teachers in making an analysis of the motives, attitudes, and environmental conditions of the experimental subjects, and measuring growth again at the close of the experimental period. Underlying the plan of the study is the conception that behavior is determined by such factors as motives, psychological equipment in the form of attitude, emotional control, etc., and the presence or absence of direct restrictions in the environment. It was assumed that to chart the growth of personality data relative to the child's ambitions or motives, attitudes, emotional stability, and the nature of the home and community environment would be needed.

From approximately one hundred thirty-five pupils of the ninth grade of a public school sixty-six subjects for whom various records required in the equating procedure were available were selected and divided into an experimental and control group of thirty-three subjects each. The two groups were equated in terms of chronological age, scores on Otis Group Intelligence Test, and achievement of previous year as measured in grade points. As indicated in the following tabulation the two groups were rather closely matched in all three factors.

TABLE I

| FACTOR | EXPERIMENTAL GROUP | | CONTROL GROUP | |
|----------------------------|--------------------|---------------------------|---------------|---------------------------|
| | <i>Mean</i> | <i>Standard deviation</i> | <i>Mean</i> | <i>Standard deviation</i> |
| Chronological age, years | 14.4 | .79 | 13.9 | .52 |
| Intelligence | 109.7 | 7.90 | 108.3 | 9.09 |
| Achievement, previous year | 3.14 | .82 | 3.15 | .62 |

The comparisons of the experimental and control groups were made in the following areas: school achievement, selected attitudes, personality conflicts, and certain ratings of pupil adjustment. School achievement was determined in terms of grade points. An attitude test including items relative to the pupil's attitude toward his school, his teacher, his home, and toward himself was administered at the beginning and at the close of the experimental period. Per-

sonality conflicts were tested by a revision of Luria's method.¹ By the use of this method it seems possible to obtain fairly reliable indications of the extent of personality conflicts, and some indication of their character and of the accompanying mental processes. The method has shown a very satisfactory reliability in a number of studies and also a satisfactory correlation with other indices of personality conflict.²

In addition to the data on grade points, attitude, and personality conflicts, teachers' ratings of the general adjustment of pupils at the beginning and at the end of the study were included.

At the beginning of the experimental period personality and environmental data were obtained for the experimental subjects. These data were made available to the teachers who were, given rather extended suggestions as to their meaning and use. From the attitude test such items as the nature of the child's ambitions, his satisfaction or dissatisfaction with various aspects of his home environment, his attitude toward his companions, and the like were obtained. Through a carefully conducted interview with parents data were secured relative to the home environment of the child, the nature of the parental attitudes, and the nature of the child's behavior at home. In carrying out the interview every attempt was made to build a co-operative relationship between the parent and the investigator. In general the parents were found to be very co-operative. The interviews varied in length from approximately one to two hours.

With the data for each experimental subject at hand the investigator summarized the important facts in written form and added her interpretations of the situation. An appointment was then made with each teacher who had the subject enrolled in her class. After a satisfactory working relationship had been established between teacher and investigator the analysis was presented, the investigator pointing out the essential facts and making sure that the teacher understood them. Suggestions that seemed helpful in understanding and controlling the pupil's behavior were supplied. It was assumed

¹ Luria, Aleksandr R. *The Nature of Human Conflicts: Or, Emotion, Conflict and Will: An Objective Study of Disorganization and Control of Human Behavior*. Trans. by W. H. Gantt, New York: Liveright [c. 1932]. Pp. xvii, 431.

² Ackerley, Lois, Ojemann, Ralph H., Neil, Berniece, and Grant, Eva. "A Study of the Transferable Elements in Interviews with Parents." *J. Exper. Educ.*, 1936-1937, 5, 137-174.

that the teachers would need help in interpreting child behavior and to this end the analyses and suggestions were made very complete and care was taken that the teacher developed a functional understanding of the pupil's behavior. Considerable use was made of alternative suggestions. The teacher then proceeded to apply her knowledge in planning the child's daily work and in the conduct of her classes.

The investigator made it a point to drop in from time to time to discuss the pupil's progress informally with the teachers. The co-operative relationship that had been built up was maintained throughout the study. In the investigator's judgment excellent co-operation was given by the teachers.

The experiment was begun in the fall and continued through the school year. The necessary measurements were repeated in the spring just before the close of school.

At the close of the experiment the difference in mean grade points between the experimental group and the control group had risen to show a critical ratio of the mean to its standard error of 3.43. An examination of the data in the tabulation below will give details.

TABLE II

| GROUP | MEAN | STANDARD DEVIATION | | CRITICAL RATIO |
|--------------|------|------------------------------|----------------|-------------------|
| | | <i>Of Distri- bution</i> | <i>Of Mean</i> | |
| Experimental | 3.21 | .63 | .10 | |
| Control | 2.97 | .68 | .11 | |
| Difference | .24 | | .07 | 3.43 |

Thus the experimental group made a significantly greater academic gain. In interpreting this finding it should be pointed out that the teachers were not aware that academic achievement would be used as one measure of comparison.

In the attitude test administered at the beginning and at the end of the experimental period ten items were included dealing with the subject's relation to school and school work. These items were scattered throughout a test which in addition to the attitude toward school included various items relating to the home, the subject's ambitions, and the like. The nature of the attitude test items is indicated by the following samples:

The following directions were given to the subjects:

Your careful answers to the following questions will help us to help you with your school work. Your answers to the following statements will in no way affect your grades but they will help us to help you. Read each of the following statements carefully. If you feel that the statement is completely or almost completely true, put a circle around 1, like 1 2 3 4 5 6 7.

If you feel that it is probably true, or true in large degree, put a circle around 2 or 3.

If you feel that it is quite undecided, an open question, put a circle around 4.

If you feel that it is probably false or false in large degree, put a circle around 5 or 6.

If you feel that the statement is completely or almost completely false, put a circle around 7.

1 2 3 4 5 6 7 Under ordinary circumstances good marks are usually the result of hard studying.

1 2 3 4 5 6 7 The use of lipstick and rouge, if not very noticeable, is permissible for girls of high school age.

1 2 3 4 5 6 7 My school work is easier for me this year than it has been in the past.

An attempt was made to conceal the purpose of the test by including items relating to many areas. It was planned to use only the items relating to school when comparing the growth of the experimental and control groups. Though its purpose was somewhat concealed the attitude test was not as indirect as was desired but was used pending the construction of a good attitude test in this area.⁸

An analysis of the items relating to school revealed that by the close of the study the experimental and control groups differed significantly in their attitude toward school. The experimental group was significantly more willing to ascribe achievement to planned work rather than to chance factors. The experimental group felt that careful work in the long run would bring its reward and that an education can be made worthwhile. The experimental group felt significantly less the need of cheating. They were less willing to be swayed by temporary likes and dislikes in school life. They felt that their work during the experimental year had been more pleasant than that of the preceding year. The experimental group also evi-

⁸ Ojemann, Ralph H. "A Revised Method for the Measurement of Attitude." *Psychol. Bul.*, 1937, 34, 752.

denced a more favorable attitude toward their school companions and gave fewer indications of feelings of inferiority than did the control group. On the whole these data seem to indicate a happier and more logical attitude toward school and school work on the part of the experimental group than the control group.

In the test for personality conflict several types of records were available. These included indications of conflict and types of verbal responses. As indications of conflict, disturbances in the voluntary movements as obtained in the Luria test were used. An analysis of the disturbances shows a significant decrease from fall to spring on the part of the experimental group and a slight but not significant increase on the part of the control group. The critical ratio of the change in the experimental group is 3.45. Thus the experimental group gave a significant reduction in the scores on the voluntary disturbance portion of the mental conflict test. The data are detailed in the following tabulation.

TABLE III

| GROUP | INITIAL SCORES | | FINAL SCORES | | CRITICAL RATIO |
|--------------|----------------|----------------------------------|--------------|----------------------------------|-------------------|
| | Mean test | Standard deviation of mean | Mean test | Standard deviation of mean | |
| Experimental | 92.3 | 7.8 | 61.0 | 4.6 | 3.45 |
| Control | 70.4 | 6.0 | 74.8 | 5.3 | |

By analyzing the verbal responses obtained in the course of the conflict test, it is possible to throw some light on the nature of the central processes. The classification of verbal responses used in this investigation is a very simple one. It includes such categories as coadjunction, contrast, predicate relationship, causal dependence, identity, egocentric, and indirect. This classification has been tested under many conditions as to its reliability. The reliability tends to run in the neighborhood of 80 to 85 per cent.⁴ An analysis of the verbal responses in this study indicates that both groups tend to change toward a more complex type of response (Table IV). However, the direction of complexity varies with the two groups. In the control group the change takes the form of a more personalized type of response. This is indicated by a comparatively large increase in such categories as egocentric, predicate, and indirect types of re-

⁴ *Ibid.*

TABLE IV
PER CENT CHANGE IN VERBAL RESPONSES

| CATEGORY | PER CENT CHANGE | |
|----------------------|-----------------|---------------------|
| | <i>Control</i> | <i>Experimental</i> |
| Coadjunction | -22.92 | -8.62 |
| Contrast | -15.51 | -25.95 |
| Predicate | 50.79 | -14.29 |
| Causal dependence | 24.44 | 71.74 |
| Identity | -32.83 | 15.35 |
| Word-complement | 0.00 | 48.72 |
| Verbal motor forms | 28.57 | -30.43 |
| Association by sound | 28.57 | 37.50 |
| Indirect association | 45.15 | -.56 |
| Egocentric | 55.81 | -47.83 |
| Fault | -26.92 | -81.58 |
| Repetition | -33.33 | -50.00 |

sponse. In the experimental group, however, there is a reduction in the egocentric, predicate, and indirect types and a very considerable increase in the category causal dependence. Such an analysis tends to indicate that the subjects making up the control group are finding it relatively more difficult to make adjustments and consequently in their mental life tend to be more occupied with personal difficulties producing a more personalized type of response. The experimental group on the other hand seems to be extending in the direction of more impersonal, objective, and logical type of mental life.

As for the ratings of general adjustment, in this area too the experimental group showed a significant change over the control group. The critical ratio of the difference to its standard error is 4.6

TABLE V

| GROUP | INITIAL SCORES | | FINAL SCORES | | CRITICAL RATIO |
|---|----------------|--------------------|--------------|--------------------|----------------|
| | Mean | Standard deviation | Mean | Standard deviation | |
| | test | of mean | test | of mean | |
| Is He Interested in His School Work? | | | | | |
| Experimental | 3.27 | .7 | 2.33 | .10 | 4.94 |
| Control | 3.12 | .09 | 2.86 | .11 | 1.94 |
| Is He Apparently Adjusted in the Classroom? | | | | | |
| Experimental | 3.45 | .13 | 2.57 | .13 | 4.62 |
| Control | 3.03 | .10 | 2.80 | .10 | 1.71 |

as shown in the tabulation below. These ratings corroborate the more detailed findings of the attitude and personality conflict tests. It is realized that ratings made by teachers who participated in the study may have a subjective bias. They are included primarily to indicate what the teachers thought of the general adjustment of the student.

Many interesting illustrations could be given as to the changes teachers evidenced in their attitude toward and treatment of pupils after they had gained some insight into the personality of the experimental subjects. One teacher unwittingly gave away this bit of information about one of the subjects:

I welcomed the information concerning H. D. He always appeared to me to be well-mannered but very independent and resentful. So independent in fact that I hadn't bothered very much with him. Naturally I was quite surprised to learn that in reality he was unhappy. At every opportunity that presents itself I am now endeavoring to assure him by my attitude that all of us have a personal interest in his welfare. I am trying to make him feel that he is definitely a part of the group.

Another teacher:

After your account of L. M. I see her as an unhappy child rather than an insolent one. I find it easier to accept her.

A sewing teacher:

I was very much interested in the information concerning G. B. I had previously caught myself wishing I knew more about her home life as she always appeared to be undernourished and inclined to be the 'mousy' type. After learning that she received so little encouragement at home I endeavour to praise her school work at every opportunity that arises and I notice she beams at every word.

An English teacher:

After discovering it was shyness and nervousness rather than sulkiness which prevented L. C. from reciting I made a special effort to see what could be done to help him overcome the difficulty. I seated him so he could be centrally located, praised him at every reasonable opportunity, encouraged him not to do things alone but in company with his classmates as asking him along with others to pass papers, and occasionally to read aloud.

These comments show the beginning of more complete understanding of pupil behavior. Shyness, resentment, over-aggression, and indifference are known to be motivated often by conflicts and frustration. They are signals not for neglect or for the drawing of battle lines but for the need of mutual understanding and helpfulness.

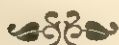
The data obtained in this study are consistent in showing that when teachers learn to know their pupils as personalities in their respective environments teachers tend to become more effective guides for learning—the pupils achieve more in academic areas—and teachers also become more effective personality “developers.”

What do these findings signify for the school? They indicate that it is not enough to be concerned about “problem children” when it comes to personality development. Teachers to be effective guides for learning must know their pupils not as entities in the classroom but as living personalities with ambitions, attitudes, conflicts, and problems, coming from environments that vary greatly in the encouragement or discouragement effected.

For teacher education, data in this study indicate the importance of including training in understanding of child development and interpretation of child behavior. For administration the results signify the importance of devising machinery by which teachers can learn to know their pupils in terms of their ambitions, hopes, and struggles in both in-school and out-of-school environments. The administrative difficulties are not insurmountable and the expense is not great when compared with the many pounds of cure represented by the many ounces of prevention that can be effected by the understanding teacher.

Chapter Four

THE CLASS AS A GROUP



16. Psychology of Group Behavior: The Class as a Group
*Wm. Clark Trow, Alvin E. Zander, Wm. C. Morse,
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17. The Class as a Psycho-Sociological Unit
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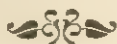
22. Individual Differences and Curriculum Practice
Walter W. Cook

WM. CLARK TROW, ALVIN E. ZANDER,
WM. C. MORSE, AND DAVID H. JENKINS

Psychology of Group Behavior: The Class as a Group

What are the educational implications of recent research in social psychology? This area of behavioral science seems highly relevant to the functions carried out in the school. The grouping of pupils that constitutes a "class" has the characteristics of a *social* group. The school, moreover, is constantly increasing its concern for and emphasis upon social learnings. It would seem, therefore, that an analysis of the characteristics, dynamics, and potentialities of the class as a social group is necessary to more effective educational diagnosis, planning, and evaluation.

This article is one of the first of this nature to appear in the periodical literature of education. In it, Professor William Clark Trow and his colleagues summarize recent social-psychological data and concepts and suggest some educational implications.



Social psychology has been experiencing a marked development in recent years; and because of the many implications for learning situations, those tilling the educational fields should be alert to the new points of view and new findings which are emerging. This statement does not imply that individual educational psychology is to be discarded, but rather that it is now directly complemented by the

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basic socio-psychological concept of the group and the consideration of intra-group relationships. As long as sociologists confined their attention largely to such social groupings as crowds and mobs, criminals and delinquents, the family, and to census groups with racial and nationality characteristics, the help they could furnish to the classroom teacher was relatively slight. But with the development of field theory and the study of interaction of individuals in a face-to-face group, and more specifically with the coming of the Iowa studies of democratic, autocratic and *laissez-faire* leadership, followed by the energetic labors of those in the field of group dynamics, the picture has changed. To this has been added the later Freudian influence in the mental hygiene movement, its expansion in the area of inter-personal relationships, and the exploitation of such treatment techniques as those of group work and play therapy. We are forced to ask ourselves whether the school class is a group, and, if it is, what this should mean to educational psychologists whose task it is to introduce teachers to the principles which should aid them in developing the best possible environment for learning in their classrooms.

DEVELOPMENTAL BACKGROUND

It should be recognized at the outset that educational psychology has from the beginning devoted itself almost exclusively to modifying the responses of individuals to more or less separate stimuli. The principles of learning, derived from the performances of laboratory animals and sometimes of children, though the results were brought together statistically, have been applied to the individual learner; and his performance has been tested by presenting him with a series of tasks to perform, and measuring his success in performing them. To describe the educational psychology of the past and the present in this way is not to belittle it. Tremendous improvements have been made in instructional materials and methods as a consequence of this view. We can well feel proud of the contributions of our colleagues and wish for their continuance, for there is much more to be done. After all, individuals are individuals, and they are probably here to stay!

The single-line, teacher-pupil relationship, however, has other

sources than the psychological laboratory. There seem to have been changing patterns in our educational assumptions as to the most effective and desirable learning situations for the pupil. At one time the tutorial arrangement, the scholar and the single student in a face-to-face relationship, was felt to be most nearly ideal. And it may be for certain kinds of learning. But the practical situation in our public schools has not, of course, permitted this kind of teacher-pupil ratio; so we tried to make our classes of twenty-five or more pupils into twenty-five simultaneous one-to-one relationships. At any rate we followed this pattern, in our classwork, of teacher control, assignment, and class discussion, all dependent on the teacher-pupil-teacher-pupil kind of interaction. In this tradition we not only have emphasized the importance of the individual pupil of the subject-centered curriculum, but also of individualized instruction, and the child-centered school.

This arrangement tended to be strengthened by virtue of the fact that it provided a more direct system of control. Any break in the line, with consequent spontaneous interaction among pupils, might well mean that the teacher had lost that control which he felt it necessary to maintain. If the class were allowed to become an interacting group, the behavior of the pupils would presumably not be contributing to the learning goals which the teacher had in mind. Thus, 'groupiness' implied 'bad discipline.'

Two factors have probably contributed to the movement away from this tutorial conception of our classrooms: the increasing interest and attention being given to social learning, and the awareness that the classrooms are, potentially at least, social situations. With the acceptance of the broader social goals of learning, no longer restricted to scholarly and intellectual activities alone, dependence on the tutorial tradition began to lessen, and the potentialities of the class as a medium for instruction in social learning became clearer.

The point where modern social psychology can offer desirable additions to the individualized approach lies in a recognition of the complex nature of what has in the past been rather loosely referred to as the stimulus situation when this situation is largely made up of other persons. The exploration of this phenomenon, and of the function of perceptual and conceptual processes in relation to it, is the chief contribution of the gestalt psychologists, whose point

of view the late Kurt Lewin was largely responsible for bringing over into the interaction field of social psychology. Teachers have long known that pupils responded to other stimuli than the words of wisdom emanating from behind the teacher's desk. But the teacher's task was to eliminate such distraction so far as possible. And while this is still often desirable, we are now interested in these other stimuli also, in the interactions of the pupils among themselves and with the teacher. We are asking, what are the implications of viewing the class not merely as a number of individuals in the same room, but as a group?

The exposition of this point of view in education did not have to wait for the recent developments in social psychology. Although the tone is definitely authoritarian, beginnings are found, for example in a volume entitled *School Discipline*,¹ by William C. Bagley, published in 1917. In this volume Bagley discussed in some detail the problem of what he called the "unruly school." He pointed out twin antithetical causes: "harsh and unsympathetic treatment," and "indulgence and weakness of control," conditions not too far removed from frustrating autocracy and *laissez-faire*, respectively. He went on to indicate some of the "difficulties of reconciling the opposing ideals of individualism and collectivism." For transforming the unruly school he included among other conditions, "the importance of the objective attitude, and stimulating group responsibility."

Likewise many school practices, particularly in the extracurricular field, have laid a foundation for group interaction. For a number of years group games and sports provided for coöperative as well as for individual effort, and teacher-sponsored 'activities' of the hobby-club variety tended to promote more informal teacher-pupil relationships. The project method, while it chiefly emphasized individual performance, also had a place for group activities. With the activity program came the educational heyday of group participation involving the imitation of adult activities in stores, post offices and the like, but largely employed as a means for motivating learning and providing practice in the traditional subjects.

However, in nearly if not all of these situations, the teacher is set off against the class. His view of the class as a kind of unit is exemplified when the teacher asks a question and then says "Class," calling for all to respond more or less in unison. The teacher is boss,

though at times he would tolerate some freedom of action on the part of the children that would permit some release of tensions. Even when an 'audience situation' is provided for pupils to read or recite passages they had learned, the same condition maintains. Similarly in matters of student deportment, now usually referred to as citizenship, the teacher is the interpreter of the mores of the culture for the pupils, and serves as judge, jury, and lord high executioner, all bundled into one.

In some schools, the system of student government, with a student council, ideally shifts some of the responsibility to the pupils and permits pupil interaction and group decisions. Similarly, in what is referred to as teacher-pupil planning the teacher forsakes his antithetical position and becomes an actual group member in the rôle of a resource person. It becomes clear that there has been a long period of gradual change in theory which has been followed by practice in some schools, the majority however probably trailing far behind. At any rate, it may be concluded that education is ready for a systematic overhauling of its theory and practice in dealing with the class as a group, and that it is the proper task of educational psychologists to lead the way.

CONCLUSIONS FROM RESEARCH IN GROUP DYNAMICS

First, in order to explore some of the possible directions that our inquiry might take, let us review briefly a few of the research findings that deal with group functioning and group interrelations in a wide variety of social settings. Although teachers work with groups and are daily troubled or aided by group phenomena in their classrooms, there has been strikingly little research on the dynamics of classroom groups. It is often difficult to identify and study the many forces at work in a classroom situation, but recent research in group dynamics indicates that it is possible to develop the necessary theoretical formulations, hypotheses, and measuring methods for testing these hypotheses. The task remains to identify those areas in which we feel the presence of group phenomena is most relevant to the classroom setting. We have much to learn about the forces involved in the relationships among students, and between students

and teacher. Since the relationship between teacher and class-groups, for example, is by its very nature changing and flexible, it is important that the concepts employed be adequate to deal with the dynamics of relationships, involving changing relationships among persons, and changing perceptions of the teacher and the class, as the members acquire new insights and learnings.

A number of assertions from recent research in group dynamics have both theoretical and practical value for the field of educational psychology and teaching methods. This list is not exhaustive and there will be no attempt to describe the nature of the studies from which these data are derived. Many of these findings are from laboratory investigations with groups, but a sufficient number of them were obtained in field-experiment settings to indicate that work of this nature can readily be done in the actual classroom setting, as well as in the laboratory. Some of these assertions are well-tested and validated. Others are less well proven. All of them have relevance and promise for educational psychology.

1) The attitudes of an individual have their anchorage in the groups to which he belongs. Present evidence makes it apparent that many attitudes can be changed more easily by making changes in certain properties of the group than by directly teaching the individuals, as individuals, even in a classroom audience situation.^{9,10}

2) The conduct and beliefs of pupils is regulated in large measure by the small groups within a classroom, such as friendship cliques, and the cohesive groups of students within a school. These groups demand conformity from their members to certain group standards, and the more cohesive the group, the greater is its power over the member.^{2,5}

3) In some instances failure to learn may be advantageously conceptualized as resistance to change, using resistance here in the same sense as the therapist uses it in his relationships with a patient.* For example, the group standards developed by persons who were learning a motor task quite similar to a previously perfected one, and who were simply told what they were to do, were entirely different from the group standards developed in a group in which

* It should be noted, however, that failure to change may be due to such 'resistance.' There may be an inadequate set, unsatisfactory motivation, inability to comply with the demands of the goal or a rational non-acceptance of a new position.

the learners participated in a discussion and made group decisions about the necessity for, and the nature of, the new task to be learned. Those who participated in the discussion learned much more, more rapidly, and with much less aggression and resentment toward the persons inducing them to make this change.^{2, 17}

4) When frustrations are met, highly cohesive groups maintain their effort in movement toward the group goal much more vigorously and effectively than do groups of low cohesiveness.⁶

5) Groups, especially those similar to classroom groups, can be disrupted into separate cliques; or this threat of disruption can be eliminated, by the alteration of forces which determine the attractiveness of the group for the members. (For example, helping them to become aware of the strength of attraction they have for each other, or the degree to which membership in the group provides a way to achieve things they value highly.) This condition can be brought about most easily when the members become aware of the forces influencing them, but it can also be effected by an outsider, such as a teacher, who adroitly helps the group to change the impact and strength of these forces surrounding and within their group.¹⁰

6) The training of persons for effective social action such as performance in school or civic service, can lead to greater effectiveness of effort by the trainees if they are members of a group which is being trained to work as a group, than will result if they are merely individuals in an audience situation.¹¹

7) The amount of interaction among students in a class is determined in part by group factors. For example, in highly cohesive groups arriving at a decision that has general approval, the person whose viewpoint is too different from that of the rest will be rejected—that is, ignored. In a less well knit group, in which the discussion is not directed to a group decision, the deviate member is likely to get more comments directed to him than the person whose ideas are quite similar to those of the rest of the group.¹⁵

8) When the members see themselves competing for their own individual goals which make coöperative effort impossible, there is disruption of the ready communication of ideas, the coördination of efforts and the friendliness and pride in one's group which are basic to class harmony and effectiveness. The competitive grading system commonly used today is an illustration in that it creates mutually exclusive goals among the members of a class group.^{3, 4}

9) The group climate or style of group life can have an important influence on the member's personalities. One such style of group life can develop hostile, obedient, uncreative, 'goldbrickers'; another can produce confused, purposeless, competitive, drifters; and still another can mould coöperative, flexible, purposeful, turn-taking, we-spirited persons. The group climate that produces such effects is created by the resultant of a number of group properties which can be combined in various ways, among which are the leadership style of the teacher or that of those who function most as group leaders, the degree of cohesiveness, which has already been mentioned, the group-member-skills, the suitability of the group process for the task in hand, the techniques employed by the teacher to satisfy his ego and other needs, and the tension-release patterns used by the group.^{12, 18}

10) The reasons for the occasional failure of project methods, and other teaching procedures which depend upon effectively functioning groups often lie in the ineffective use of group problem-solving methods, or in the unskillful handling of group procedures. Groups can help themselves to mature and improve their ability as a learning or producing team by diagnosing their own failures and planning ways of repairing their own deficiencies. Students of group development have devoted much attention to methods of group diagnosis, ways of presenting the findings to a group, and methods for alleviating a group's procedural difficulties.⁸

11) Certain forms of classroom behavior may be recognized as mechanisms developed for relieving tensions somewhat similar to those employed by an individual in relieving his tensions. For example, they employ patterns of group behavior which help avoid difficult tasks or unpleasant situations. These mechanisms are often difficult to identify since they may either be wrongly perceived by the teacher as signs that the group is keeping busy, or they may be accepted as the usual troubles one gets into by the use of committee methods.¹³

12) Difficulties in the transfer of verbal learning to social behavior, can often be overcome by the use of that form of rôle-playing referred to as reality practice, in which the participants try-out the behavior they are expected to use in a situation from which all threat has been removed. Inhibition blindnesses, or fears of 'learning' certain content, or behaving in unaccustomed ways can be re-

moved by the use of a 'cultural-island,' a situation where new group standards are generated while away from the source of the inhibitions. This procedure is effectively used in excursions, conferences, summer camps, and other group activities in which the person is under the pressure of group standards that are different from those at home, and so he dares to adopt forms of behavior which might be quite desirable for him, but which he might hesitate to try out in his accustomed environment for fear of adverse criticism.⁷

Thus we can safely accept the view that group phenomena definitely affect the progress of learning, as well as the kind of learning that takes place. The educational significance of this view derives from the fact that the pupil's attitudes as well as his behavior patterns are modifiable. Increased motivation in participating in the classroom activities, and consequently in learning, derives from several different potential sources in a group atmosphere where good mental hygiene prevails.

Three such potential sources of increased motivation will be considered. The first of these sources lies in method of *goal determination*—the extent to which the goals of the class are determined by the entire group including both pupils and teachers, in a truly co-participant sense. When this procedure is followed, the child will feel that he has some control over his own destiny and, therefore, is able to accept the group goals which he helped select as being his own personal goals. They are things which he himself wants to do and, therefore, he is more likely to follow through on them. The absence of such codetermined objectives does not mean the absence of group standards, but some of these standards are not likely to be the ones which the teacher would choose, or the ones which best promote learning. Such group standards as the 'gentlemen's mark' of C, and the group rejection of the student who is too 'eager,' are familiar to all. Thus group standards in a classroom may inhibit good learning as well as accelerate it.

The second source of increased motivation lies in the extent to which the teachers and the pupils build a *supportive atmosphere* in the classroom, one which helps each child to realize that he is an accepted group member. When this condition maintains, each child has his own 'area of freedom,' within which he is free to make his own decisions. This area can often be much wider than

is ordinarily supposed by teachers who are constantly making pupils' decisions for them. Although the group may not approve of everything a pupil does, it still accepts him as a person. In this kind of an atmosphere the child is able to develop a greater feeling of security with his fellows. In addition—and this is the important contribution to learning—he is likely to feel freed from personal threat and criticism and, therefore, more willing to go ahead and try new things without fear, realizing that if he fails he will not be rejected either by the class or by the teacher. Thus failure can be a very positive learning experience because, once the emotional threat is removed, the child can look at his abilities and limitations far more objectively and with greater awareness of what next steps are required for his learning. It would seem that little learning can occur if the child is denied positive opportunities to make errors.

A third potential source of increased motivation lies in the extent to which the various members of the class are accepted as *participating members*. When they are so accepted, each can benefit from the knowledge, skills, and abilities of all the other members. They are no longer dependent primarily or solely on the teacher for all information and guidance. Besides offering the possibility of the development of broader understandings, this gives to each pupil the opportunity to be a contributor to the group, and the classroom becomes, then, a situation for mutual exchange, for mutual sharing. Research is beginning to show the increased productivity of groups which have this coöperative pattern of relationship.³ Goal determination by the group, a supportive atmosphere, and a participating membership, then constitute three conditions of group organization of great effectiveness in developing motivation which contribute to the promotion of effective learning.

THE ROLES OF A TEACHER

What can the teacher do to develop and maintain these conditions conducive to learning? There are three fundamental roles which cover the things a teacher does. Actually these are not discrete parts of the teacher's job, but they do carry quite different implications. The roles that will be discussed are the following: (1) the instructional role, (2) the role of the democratic strategist, and (3) the role of the therapist. Following this, we will ask how the

teacher selects the proper role, and how the actual operation of this role can be evaluated.

First, the *instruction role*. It is obvious that the concept of what a teacher should do has changed over the years. To the Hoosier schoolmaster the matter was quite simple. He was the drill sergeant. The cadence of recitation was akin to the sound of marching feet. As master of the drill, he called the steps. This teacher also held the role of academic authority; not only did he choose the school experiences, but he was also revered for his great storehouse of information. His very person was the embodiment of learning, and he was categorically right. This fundamental instructional role has mellowed with the years. Now the teacher does not always have to know. He operates as an adult with superior learning to be sure, but serves more as a resource person explaining, telling, and demonstrating. His drill-master's uniform has been exchanged for the Socratic garb, for his instruction is more concerned with fostering the students' power to think and reason. This major 'informational role' of the teacher is often discussed and is perhaps quite well understood. But it should be clear that this role itself is not exclusively the property of the teacher. At times, especially as the content of the course falls within the experience of the students, the class members share or take over the instructional role. As we come to understand more about the dynamics of the classroom, we realize that the way in which this role is handled by the teacher has important effects on the total learning situation.

A second major role which the teacher must play is that of democratic strategist. This has been discussed by other writers under the heading of "group formation." With the goal of pupil participation the teacher must provide the occasion for the introduction of processes to facilitate teacher-pupil planning. To play this role successfully two things are required: a high regard for democratic values, and their implications, and a high level of psychological insight into group factors and individual personality. In the role of a democratic strategist, the teacher helps the group utilize various methods of progress evaluation, and the information about their progress which they secure. He further helps them see and clarify their accomplishments, blocks, and failures, as well as the values in democratic group action. Thus the task is more than that of being merely an exponent of democratic education. This role be-

comes one of activating democratic processes by helping the class to experience democratic goals and relationships in the design of their everyday classroom experiences.

Understanding the dynamic forces which are affecting the class as a group and those which the techniques bring into play makes possible a contribution to democratic learning because our democratic ethics have established the educational goals and values. Techniques are selected in terms of their potentiality for contributing to the democratic goals of the group at the particular time. It should be pointed out that on the basis of a different set of ethics for the same conditions in a group, different techniques would be selected in order to achieve the goals determined by these differing ethics. However, since it is a contribution toward democratic learning that is desired, it is essential that teachers become as skilled as possible in understanding and working with their classroom groups. For a lack of such skill is likely to result in conditions which are quite the opposite of democratic, even though democratic techniques were supposedly being used. Democratic techniques do not exist *per se*; a technique is democratic only to the extent that it serves as a means to help the group achieve its democratic goals at a particular time. For example, the democratic technique of voting has been used as a very effective method of imposing some small minority opinion on the group.

A third important role of the teacher can be subsumed under the title of therapist—a combination of clinician and group worker. Lest someone remonstrate at this obligation, let him be reminded that, willingly or not, every teacher plays this role. Sometimes it is somewhat separate from other functions, but more often it is embedded in the classroom life while other functions predominate. No teacher avoids being a group worker, although some are more successful than others and some do crude jobs to be sure. The role of therapist implies group management to the end of helping all of the children toward individual and social adjustment. This means a degree of permissiveness, the establishment of rapport with each child, and the conduct of the work without the teacher's ego becoming involved. Such masterful, objective, 'impersonal' human relationships are hard to come by. No one person is able to meet the differential needs of thirty-five or more children and serve as a cushion to soften the blows of harsh reality dealt out by

the child's peer culture. But one tries. To do this the teacher must so act as to be the implicit embodiment of an acceptable code of behavior. Time and time again the mores of mental hygiene are illustrated as the teacher relates to the children, to their feelings and to their problems.

It is through the supportive atmosphere previously discussed that the teachers' therapeutic work is carried on. In a conflict situation pupils may come to the teacher as a judge or decision maker. The case need not be handled arbitrarily, but it must be handled. Teachers can never be neutrals but are continually interpreting 'the law' as it applies in individual cases. In the therapist role, the teacher shares insights concerning human behavior, helps to get at causes of conflict and to find methods of resolving it. Sometimes the teacher serves this end by just being a friend, or he may provide, or himself be, an example with whom the child can identify in the Freudian sense. At any rate, the teacher must be an expert in human relations, understanding both the group and the individual.

In general teachers play this role least adequately of all. They tend toward being moralists, policemen, or punitive agents expecting good character to be developed by decree. While we have much to learn in applying the therapist role to the teacher, we already understand enough to know that such a playing of the role spells failure. The reason for such failure may often be that the teacher, having personal needs, tends to exploit the situation to satisfy these needs. We have in mind the need to be loved, the desire to avoid conflict, or pressures from latent hostility as examples. A very common attitude is the desire for dependency, where the teacher is happy if the students remain attached and dependent. Redl¹⁴ has written a very interesting paper approaching this from a slightly different angle in which he shows how teachers tend to orient the whole atmosphere so that it plays into a masochistic or sadistic syndrome, to take only two examples. This is a complicated study in depth psychology, fraught with controversy. But it is not without point to us.

SITUATION AND CHOICE OF ROLE

From the point of view we have been discussing, it will be seen that there is no single complex of roles a teacher plays. The different

legitimate objectives of a classroom demand different emphases. Certainly groups of children differ in their leadership qualities, and other individual and group factors need to be studied and understood. The question the teacher would then ask is: "What technique will contribute most effectively, in terms of the dynamics of my class at this time, to the goals and values which are held by the class (or myself, depending on who determines the goals)?" Two things are needed in selecting the techniques: (1) a knowledge of the dynamics of the technique itself, and (2) a knowledge of the goals and values of the group.

Knowledge about groups will help materially in gaining an understanding of the dynamics of a particular technique, and of the kinds of forces in the group which it brings into play in a positive (or negative) manner under specified conditions. To know these dynamics is important. Otherwise the teacher may fall into the trap of thinking that certain techniques are 'good' *per se*, forgetting that a technique will contribute to the group only as it is able to draw on the positive forces present in the group at the time. If the condition of the group is different at a particular time, the 'good' technique may bring out all that is 'bad' in the group, causing him to wonder why it didn't work, or to blame the group for 'not cooperating.'

SOME TYPICAL CUES FOR ROLE CHANGES

How is it possible to determine which role to play at a particular time? What are the characteristics of a group which will serve as cues for shifting roles? One such cue is group 'apathy.' If the group is lethargic and passive, one must start searching for reasons. Is it the course content? The teaching methods? A general atmosphere of repression? Children who do not become boisterous at times are living under the control of teachers who are misers of freedom.

Another cue is to be found in the rapidity of 'spread of disorder.' In a group with adequate morale and goal involvement, disturbances do not spread easily. If one child upsets the room, individual work with that child is, of course, indicated. But more important is the signal it gives about the group condition. If a 'bad actor' is a source of rapid contagion, the bond of common

purpose must be weak indeed. This condition may be caused by such a simple thing as the need for a change of activity due to a requirement for overlong attention to a specific task. It may be a tension for muscle discharge, or it may go far beyond this to a fundamental dissatisfaction with the teacher behavior.

Other cues for further diagnosis and role modification include the presence of isolates, cliques, scapegoating, exclusiveness, extreme competitiveness, and the like. How much do teachers know about diagnosing these things? Indeed, how much help can educational psychologists give? Once the teacher really understands the situation and appreciates its deeper aspects, the role complex to meet the situation can usually be found. The task of the educational psychologist is to see that teachers are so trained that they will understand the dynamics of that situation.

Understanding more about the dynamics of groups helps the teacher in a variety of ways toward increasing his effectiveness in the roles that are appropriate in different situations. As more is learned about the theory and research on groups, new ways of thinking about the classroom situation will at first be gained, ways which may have been overlooked before. The importance of effective communication will come to be recognized in giving instructions and in expressing ideas. The relationships between the various pupils in the class will be studied, how they feel about each other, and the leader-group relationships, and gradually the teacher will become aware of his own behavior in the class and the kinds of effect it has on the pupils.

Of course, it is not easy to take one's knowledge into the classroom and become immediately aware of these complex interrelationships. Often it takes considerable training in observation and experience to be able to see, especially at the time it is happening, what is occurring in the group and what its casual relationships and potential effects are. The transition from 'book learning' to 'observation skill' is a difficult one to make, but it must be made if knowledge about groups is to contribute to teaching effectiveness.

EVALUATION

How does one know one has effectively employed the correct role? Were the results in the true psychological sense, those which

were described? Was there progress by the individual or the class in the direction of the goals which had been established, and was this progress as great as it might have been if some other teacher role had been used, or if this present role had been carried through more effectively? And were the dynamics of group relationships improved as a result of this particular role? Is the class in the 'healthier' condition and more ready to take forward steps toward whatever new goals may be established, or have they achieved some of their important goals at great cost to themselves and to their interrelations in the group?

Information about these questions can come from different sources. The teacher, by employing the same sensitivity and observational skill used in individual diagnosis of pupil difficulties will become accustomed to diagnosing the group. An examination of the condition of the group will be an examination, at least in part, of the way in which the role previously employed affected the group and their response to it. Diagnosis and evaluation, then, go hand-in-hand as a continuing process for the teacher. Evaluation of a previous step, in a large measure, provides the cues of the next step, and for the choice of the role to be employed.

Of course, the teacher is not the only source of evaluation data in the classroom. To overlook the students' contributions is to disregard not only a most important source of information, but it is to deny the students the opportunity of evaluating their experience in the class which is the basis for making decisions to improve themselves as individuals and as class members for future work. It is not an easy task, obviously, to carry through an effective evaluation as a group, but the process may be a most valuable educational experience for all.¹⁰

A third source of evaluation data depends on the availability of outside persons who could be called into the classroom as observers. Someone who is not himself involved in the group is often able to note many important situations which the person who is trying to carry through an effective teaching job almost necessarily overlooks. The outside observer—whether he be a supervisor, principal, fellow teacher, or trained clinician—can note these situations. And to the extent that he has the personal skill in his relationships with those individuals to discuss his observations with the teacher freely and acceptingly, he can be of service in increasing the

teacher's own skill in the classroom. He may also take the next step and open his insights to the group as a whole, helping them to see and comprehend more fully the processes of group interaction.

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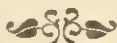
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SIDNEY L. PRESSEY AND DAVID C. HANNA

The Class as a Psycho-Sociological Unit

Many college and high-school classes have been almost exclusively subject-matter centered. And many a teacher feels that the nature and extent of social interaction among the students are the responsibilities of the students and need play no part in his own planning.

The authors of the following article take exception to this view and offer some interesting results of an attempt to discover and promote the social interaction of their own students. How much do students become acquainted with one another in a college class? How might this interaction be increased? What is the relationship between the "popularity" of a student and his interest in his classmates? What happens to the social structure of a class as its members become increasingly acquainted? Professors Sidney L. Pressey and David C. Hanna provide suggestive answers to such questions as these at the college level.



A college class is usually thought of as a place where students learn; and the only relationship explicitly fostered there is between student and instructor rather than between students. In class, the students are supposed to pay attention to the instructor and discuss topics with him; to pay attention to other students or talk with them during the class hour is considered contrary to the classroom ethic. Students are supposed to get acquainted with each other and develop as social beings not in class but at the student union and

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in fraternities and dormitories, and at dances, games, and other student affairs. The dichotomy of function is rather sharp.

But it would seem possibly desirable that students should make each other's acquaintance in classes also. There, they might find a common ground of acquaintance in shared intellectual or professional interests rather than simply in athletic or social diversions. And perhaps, if the instructor felt some responsibility for a student's social as well as intellectual development, a "socialized" class might present exceptional opportunities for him to study each student's social adjustment, and help him in his growth as a social being.

In accordance with such concepts, the senior author of this article has for some years tried to develop the required course in educational psychology in the College of Education of the Ohio State University as a practical laboratory in applied social psychology. In these classes, students spend about half their time working informally and socially about round tables in groups of five or six. Some field trips are taken. There is stress on social, coöperative work. All this seemed entirely fitting, in a course dealing with modern concepts regarding the child as a social being, living and learning with others (1). This article reports certain data regarding outcomes of this effort. Four questions will be considered.

1. *How much do students become acquainted in the average college class, and how much might this acquaintance be increased?* To inquire regarding this question, students in certain rather conventional and formal college classes (but classes averaging only about 20 students in size), students in informal classes in general psychology (averaging about 28 students in size), and students in the socialized classes in educational psychology above mentioned (also averaging about 28 students per class) were asked to list the names of all students in that class they knew by name. This very simple criterion of acquaintance—knowledge of the other student's name—was rough indeed, but seemed practical and reasonably adequate for the purpose in hand. Data were gathered at the beginning and end of the quarter, and also at beginning and end of the second quarter in what is known as the psychology sequence. This sequence consists of a quarter of elementary psychology followed by a quarter of educational psychology, the same instructor and the same student group of about 30 being kept together for the two quarters, or six months in all. It has been felt that this longer class

acquaintance should be profitable for the purposes mentioned above.

Table 1 summarizes the results of this simple inquiry. The first column shows that classes in a big university are likely to be made up of students most of whom at the beginning are strangers to each other; the median student knew only three of his classmates by name and 33 per cent knew none or only one. The last column shows that even by the end of the quarter acquaintance had progressed very little, in conventional classes; the median student knew only five classmates after 11 weeks with them, the best acquainted

TABLE 1

Student acquaintance in classes conducted (a) in informal fashion in General Psychology, (b) in socialized fashion in Educational Psychology, (c) and in a conventional fashion in "X" department, as shown by number of his classmates that each student knew by name. Data in "X" department were gathered at end of quarter, and in Educational Psychology at beginning and end of second quarter of a two quarter sequence. Expressed as a per cent of all cases in each group. Largest class, 33 students.

| NUMBER KNOWN | GENERAL PSYCHOLOGY | | EDUCATIONAL PSYCHOLOGY | | "X" COURSE |
|-----------------|-----------------------|------------|---------------------------|------------|------------|
| | <i>Beg.</i> | <i>End</i> | <i>Beg.</i> | <i>End</i> | <i>End</i> |
| 32-33 | | | | 4 | |
| 30-31 | | | | 4 | |
| 28-29 | | | | 16 | |
| 26-27 | | | 1 | 17 | |
| 24-25 | | 1 | 1 | 16 | |
| 22-23 | | 2 | 1 | 10 | |
| 20-21 | | 2 | 2 | 9 | |
| 18-19 | | 5 | 3 | 6 | |
| 16-17 | | 8 | 3 | 4 | |
| 14-15 | | 8 | 17 | 4 | |
| 12-13 | | 12 | 11 | 3 | |
| 10-11 | 1 | 17 | 16 | 2 | 5 |
| 8-9 | 5 | 16 | 13 | 2 | 11 |
| 6-7 | 9 | 13 | 11 | 2 | 19 |
| 4-5 | 17 | 10 | 7 | 1 | 36 |
| 2-3 | 35 | 4 | 5 | | 23 |
| 0-1 | 33 | 2 | 9 | | 6 |
| | 100 | 100 | 100 | 100 | 100 |
| Median | 3.0 | 11 | 9 | 25 | 5 |
| Number | 198 | 198 | 219 | 207 | 64 |

knew only 11, while six per cent still knew none or only one. And these classes were small—none over 25 students!

In contrast, the informal classes in general psychology ended with a median acquaintance of 11 and only four per cent in the 0-1 row. Because of a few changes in the student group, the second quarter of the sequence began with a median acquaintance of nine, and nine students knowing none or only one in the class. But by the end of this second quarter even the most unacquainted student knew at least six of his classmates by name, median acquaintance was 25, and four students knew everybody! Clearly (for whatever it may be worth) it is possible to bring about much student acquaintance in college classes—and clearly the conventional class does not do so.

2. *What is the relation between "popularity" and interest in classmates?* In terms of the data, the very simple issue here was as to whether those people who knew many other students were, in turn widely known. The following double-entry table (Table 2) is

TABLE 2
EXTENT TO WHICH STUDENTS WHO KNOW MANY STUDENTS ARE
ALSO KNOWN BY MANY
(Correlation .35; at beginning of quarter .78)

| | KNOWN BY | | | | | | | | | | N |
|-----------|----------|----|----|----|----|----|----|----|----|----|-------|
| | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | |
| 32 | | | | | | | | 3 | 4 | 2 | 9 |
| 30 | 1 | | 1 | | | 2 | 2 | 2 | 1 | | 9 |
| 28 | | | 1 | 2 | 4 | 2 | 8 | 12 | 5 | | 34 |
| 26 | | | | 4 | 2 | 4 | 12 | 11 | 1 | | 34 |
| 24 | 1 | | | 2 | 3 | 12 | 8 | 8 | | | 34 |
| 22 | | 1 | 4 | 1 | 2 | 7 | 5 | | | | 20 md |
| 20 | | | | 3 | 2 | 3 | 6 | 3 | | | 17 24 |
| 18 | 1 | | 1 | 3 | | 1 | 4 | 2 | | | 12 |
| 16 | | | 1 | 1 | 2 | | 4 | | 1 | | 9 |
| 14 | | | | | 1 | 1 | 4 | 2 | | | 8 |
| 12 | 1 | 2 | | 1 | 1 | 1 | | 1 | | | 7 |
| 10 | 1 | | 1 | 1 | | | 1 | | | | 4 |
| 8 | | | | | 3 | 1 | 1 | | | | 5 |
| 6 | 1 | | | | | | 2 | | | | 3 |
| 4 | | | | | | 1 | | | | | 1 |
| N | 6 | 3 | 9 | 18 | 20 | 35 | 57 | 44 | 12 | 2 | 206 |
| Median 22 | | | | | | | | | | | |

Knows

here relevant, and suggests many interesting human problems. In the upper left-hand space is one quiet student who knew 30 other students by name but was known by only 10 of his classmates. In the bottom row is a student who knew only four of his classmates, but 20 of them knew him. He came into the class at the end of the first quarter of the sequence, and became acquainted (due to poor management on the part of the instructor) with only four other boys at the table where he worked. A noisy, conceited boy was known (unfavorably) by 23 classmates, but never bothered to learn the names of more than six.

The correlation exhibited in Table 2 is only .35. At the beginning of the quarter the correlation of "knows" with "knowns" was .78! At the beginning of the quarter, the students apparently knew each other on the basis of previous acquaintance or some small-group association, so that the relationship was usually mutual. But as the class came more and more to function as a larger group, personality types such as have been mentioned above began to differentiate themselves. And the instructor who does feel some measure of responsibility for his students as social beings is presented, by such a double-entry table, with sundry problems. He should bring it about that the student who knows only four other students does get to know more, that a quiet young person who knows almost all his classmates does get to be known by more than 10 of them, that the noisy nuisance is brought—kindly—to some self-understanding.

3. *What is the social structure of a class group, as it becomes acquainted?* To obtain some evidence on this matter, toward the end of the two-quarter sequence the students were asked to estimate the amount of time *outside of class* they had spent during the quarter with each one of the other students, the extent of this outside association being designated as none or casual association, or association for a total of 5, 10, or 20 hours with him. Figure 1 summarizes the findings for one of these classes, for association estimated at 20 hours or more, the chart being drawn in "Moreno" fashion.

First of all to be noticed is the fact that, presumably as a result of acquaintance begun in the class, all but one of these young people have come to be with at least one other member of the class a good deal outside of class. They have had lunch together, met in the

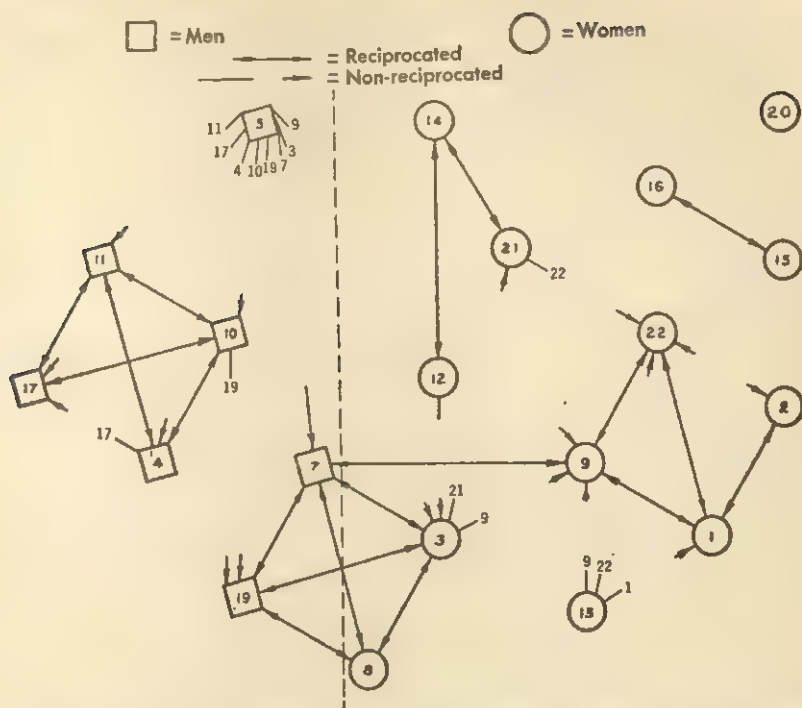


FIGURE 1. Social structure as shown by student reports of 20 hours or more, during the quarter, spent outside of class with other members of the class.

Besides these 20 students, there were in this class two others who were absent on the day the above data were obtained, and three who had been in the class for one quarter only. In other words, the chart shows what happened to all the students in the two-quarter continuity except for the two absentees.

library, worked together, had cokes with each other in campus hang-outs, gone to games or had dates together.* Prior to meeting in this class, only four of these students had been acquainted.

In the second place, it is clear that there are social structures in

* From these socialized classes some years ago, there has already resulted at least one happy marriage! And is it not better that such acquaintance should begin with companionship in professional training, rather than in social contacts perhaps trivial and probably far less significant of common interests and ideals?

the group. Four boys are often together, also four girls, and one foursome of two of each sex. These are the major groups. Girls 15 and 16 are chums; and 12, 14, and 21 are a chain. Girl 9 seems most popular; six classmates declare that they had been with her at least 20 hours. In contrast, girl No. 20 is indeed an isolate who, according to her own recognition and that of her classmates, has little relation with them. Boy No. 5 presents a somewhat pathetic picture. None of his classmates speak of spending very much time with him, but he declares that he has spent 20 hours or more with eight of them, six boys and two girls. Girl 13 presents a somewhat similar problem. Clearly this simple little schematic drawing is full of poignant human significance. A socially adept instructor, having such a chart early enough in the quarter that some action might be taken on the basis of it, presumably might bring the isolates into contact with some of their classmates and perhaps bring the clusters into more interrelation.

4. *What were the personality problems of these students—and what could be done regarding these problems?* The outlines of the personalities of some of the above mentioned cases can already be seen. For constructive guidance, much more needed to be known. Further knowledge was got in various ways. At the beginning of the course each student was asked to fill in a student-data-sheet telling where he had traveled, what he did with his vacations, what work he had done, what his home circle consisted of, how much he had been away from home, to what groups on the campus or in high school he had belonged, and so on. At the beginning of the second quarter, when filling out the "acquaintance list" each student was asked to write a brief thumbnail sketch of each classmate "to show how well he knew him." These characterizations were often exceedingly revelatory of personality problems—and indicated much about the writer as well as the person described. Finally the instructor had contacts with the students not only in class but also on the field trips, an occasional picnic, and other special occasions, and opportunity to observe how each student behaved in all these situations. In all, the instructor had opportunity to know his students, and their problems, very well. More important—he was in a position to do something about many of these problems. A quiet little girl became more interesting to her classmates after she was

given opportunity to tell about her year in Hawaii. Another gained confidence from appointment as chairman of a class committee. A girl-shy lad found working at a "mixed" table really very pleasant indeed. Clearly, such a class presents many opportunities for very practical applied social psychology.

SUMMARY

1. The paper reports an attempt to use University class groups as psycho-sociological units for the study of each student and for constructive development of each as a social personality.

2. It was found that at the end of a quarter students in a conventional class are little acquainted with each other. In contrast, by the end of a two-quarter sequence in psychology the average student knew four-fifths of his classmates by name, and most had spent at least 20 hours with at least two of them, outside of class.

3. A diagram of social structure in the class showed interrelations of significance for social guidance.

4. Such data as have been described, plus statements by the students about themselves and observation of them in the varied class projects, make possible an understanding of each student as a person far beyond what is obtained even by expert counselors, and also constructive help for each student in bringing about better social adjustment.

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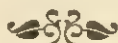
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HERBERT F. WRIGHT, ROGER G. BARKER,
JACK NALL, AND PHIL SCHOGGEN

Toward a Psychological Ecology of the Classroom

The teacher's attempts to understand and guide pupil progress can be greatly facilitated by the considerable body of research findings in education and psychology. They enable him to predict a great deal about what a child is *likely* to do under certain conditions. Sometimes, of course, these predictions will be in error because more information is needed than general psychological principles can provide. What each teacher needs is knowledge about the actual life conditions of the *individual* pupils he has in his classroom and the *specific* behavior settings that influence their actions.

The following discussion and data indicate some ways in which the needed information can be obtained and suggest the educational potentialities of such an approach.



Two contributions of psychological and educational research stand out in a broad view of our resources for an understanding of social interaction in the classroom. Both are the products of essentially experimental work. The first is a growing body of knowledge about the laws of social behavior. The second is a battery of instruments for diagnosing the social characteristics of individual pupils.

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These contributions enable us to give a lot of *if, then* advice. We can say that if children are rewarded or punished or coerced or deprived or praised or blamed or gratified in the classroom as children were in this or that experimental study, then they are likely to behave as classroom members in certain ways. And we can say that if children do thus and so under the conditions of particular tests, then they are able or disposed to behave similarly when like conditions arise in their school lives. Such conditional statements often turn out well enough to facilitate greatly the tasks of educational guidance.

But these accomplishments leave us with a need for another kind of research product. Our knowledge of what pupils are likely to do under certain conditions and our devices for measuring what they are able or disposed to do leave us at this late date with a need for knowledge of their actual behavior and their actual conditions of life at school. This need can be met only by recording and analysis of field observations. It calls for a psychological ecology of the classroom. We would like to mention at once some possible benefits of developments along this line which seem pertinent to the theme for the present collection of papers.

SOME PROSPECTS OF A PSYCHOLOGICAL ECOLOGY OF THE CLASSROOM

First, naturalistic descriptions of classroom behavior and situations should better our understanding of the relationships between life at school and personality formation. Even complete mastery of social-psychological laws could never alone disclose these relationships. Why do the graduates of Groton differ from those of the public schools in Yankee City? If we are to answer this and other questions about the formative influence upon human personality of differing educational practices and facilities, we must know more than the laws of social behavior. We must also know how the parameters of these laws, the conditions of social behavior, are distributed in the Grotons and the Yankee City schools and other representative schools or classrooms of society.

A psychological ecology of the classroom should, in the second

place, bolster and widen our currently proffered explanations of social behavior. If social-psychological experiments in nature may be expected anywhere, a classroom would appear to be a good place to sit and wait for them to happen. We know enough now to say that it is an arena in which there occur many kinds and degrees of cooperation, competition and conflict; widely ranging interpersonal attitudes; differing selections and prescriptions of roles and relationships between roles; varying arrangements of status and power; all sorts and levels of social success, frustration and failure; differing types of group structure, leadership, and morale; and all the currently known varieties of social climate. Events happen fast in this arena and it would defeat the purposes of ecological research to slow them down or interfere with them in any way as, in doing experiments, one must. But perhaps it is possible to record these events *and* the conditions under which they occur. It may then be possible to identify in what is recorded essential variables of both the events and the conditions, to interrelate the variables, and so in the end to improve our theories of social interaction.

A third likely outcome of research on naturally occurring behavior and situations in the classroom is an immediately practical one. Teacher training programs have emphasized the importance of so preparing teachers that they know "what to expect." Thus, in part, the provisions for practice teaching and classroom observing. The good effects of these measures would be strengthened if adequate descriptions of what pupils do, of how they interact with the teacher and one another, and of the conditions that make a difference to what they do in the classroom were to be made widely available for study. There is a gap of varying width between textbooks in educational psychology and the restless welter of problems in social behavior which teachers have to face. Good descriptions of the sort proposed, both in the terms of everyday experience—"John, where all could see, stuck out his tongue at Mary"—and in the conceptual language of the textbooks—"John showed the behavior modalities or needs of aggression and exhibition"—could go far to close this gap. One can even see the possibilities here in legitimate object lessons to teachers on the wrong ways and the right ways to interact with pupils.

These possible gains from a psychological ecology of the classroom illustrate the ends sought by the Midwest Field Study of

Children's Behavior, the subjects of which are the 109 children below age 12 who live in Midwest, a small town in the central part of the United States. In the hope of contributing indirectly to the attack on the general problem of social interaction in the classroom situation, we would like to discuss some developments of this research. It is not possible for us to review important contributions of related studies in which naturalistic methods have been used.

THE CLASSROOM AS A BEHAVIOR SETTING

One task of the Midwest Study has been that of listing and describing the relatively stable loci for the behavior of children in the community. These we call behavior settings. The classroom is only one of them; but it is a very important one. Others are the Sunday school, the 4-H Club and the drug store.

A behavior setting is a discriminable part of the whole physical and social milieu of a community that has within it certain generally seen possibilities for human action.

Every behavior setting has two sides. On the one side there is always a set of environmental raw materials for behavior. These may be physical or social or both. Here are some samples from the classroom of the first and second graders in Midwest: the teacher, Mrs. Logan; a chart with gold and silver stars; some pictures, among them Abraham Lincoln, *The Song of the Lark*, and *Friends*; plants and lunch boxes on the window sills; the ABC's on a border over the blackboard; a homemade aquarium; the first and second graders themselves; the rule that you sharpen your pencil only during recess; the custom of ordering exits by "turn, stand, pass." With all of these, behavior is transacted; and all are more or less stable and enduring elements of the whole composite.

On the other side of a setting there is always the set of possibilities for action that are seen by the generality of persons living in the community as "what you do there," as "fitting," or "appropriate." Beyond reading, writing, figuring, keeping quiet, and coloring, things generally perceived as appropriate to do in the first and second grade room in Midwest include: taking part in occasional spelling bees, reporting an own experience to the class every

now and then, and sometimes eating lunch at your desk during the noon hour. The culture-wide perception of the possibilities for action in a setting does not preclude unique individual perceptions; it rather persists as a ground against which, as figures, unique perceptions may occur.

A complete psychological ecology of the classroom must describe both the environmental raw materials and the generally seen things-to-do of this setting in different communities and cultures. This is a task to which cultural anthropology has already made significant contributions. Yet it is one leaving much to be done by social and educational psychologists toward the solution of their special problems.

Behavior settings are coercive. Every adult who has yelled at a ball game, bowed his head at church, ridden all day on a train, or listened at a concert knows this to be true. So does every child who has sat tight in his assigned seat in a classroom. With frequent and important exceptions, in any behavior setting different persons do like things in similar ways. It has to be recognized, however, that there is no binding dynamical relationship between behavior setting and human action. In any setting anything *can* happen—as a teacher facing a classroom full of children knows well. For, at bottom, what the person does in a behavior setting, the classroom or any other, depends at any one time upon the meanings of its parts to him; it depends upon his own goals and paths or obstacles; upon his own needs and abilities. It depends, in all, upon the forces in quite another zone of influence than the world of behavior settings. This other world is the naturally occurring life space, the relevant context of everyday behavior, which we have called the *psychological habitat* of the person. This world includes conditions in both the person and the environment. The environmental part of it lies between the person and the raw physical and social materials, together with the generally seen things to do, of the behavior setting. The coercive effect of a setting upon behavior, then, is indirect. It stems only from the fact that every setting tends to bring about certain psychological habitats rather than others.

What this means here is important. It means that an adequate psychological ecology of the classroom must describe the psychological habitats that *are* brought about in this setting and the particular behaviors which these habitats engender. In the space

that remains, we want only to exemplify by a single case how in the Midwest research we have gone about this task of description.

BEHAVIOR AND PSYCHOLOGICAL HABITAT IN THE CLASSROOM

The subject of the example is Raymond Birch, a seven-year-old boy. He is a pupil in the second grade of the Midwest elementary school. What is life in the classroom like for him?

What does he do there? We know that he reads, writes, and studies arithmetic. But how? And what else does he do? With whom does he interact? And how?

What kind of unique world arises for Raymond in this setting? How big and expansive is it? Or how small and confining? How clear or unclear? How hostile or friendly?

We would like to describe Raymond's behavior and psychological habitat as concretely as possible. In the end, though, we want a description in terms of concepts that will enable us to relate essential variables of the behavior and its context to one another. Above all, we want a description that will allow us to compare the life continuum of this boy with that of other children, in school and out, in Midwest and other communities. We have worked toward these ends with children of Midwest through a series of three steps.

THE SPECIMEN RECORD

The first step is to get a sample of the behavior and situation of the child. We call this sample a specimen record because it has some features in common with other scientific specimens. It is, in fact, the old narrative or anecdotal report, raised from the limbo of psychology in the hope that it may be made to meet present-day standards of efficiency, unbiased selection, reliable reporting, and valid interpretation. The specimen record gives a multi-dimensional picture of the molar and molecular aspects of behavior and situation. It saves for study many of the inter-relations between simultaneous and successive conditions. It preserves in some measure

the continuity of behavior. It presents unanalyzed material that can be used for many different purposes.

On April 26, 1949, we made a specimen record of the behavior and life situation of Raymond Birch from the time he awoke in the morning until he went to sleep at night. Nine observers took turns in watching and reporting all they could of what Raymond did and of what he saw, heard, approached, avoided or reacted to in any other way. Counting out time for recess, Raymond spent 4 hours and 20 minutes, nearly one-third of his day, in the classroom. Here is a 4-minute sample from the 260 classroom minutes. It is 1:31 in the afternoon. Mrs. Logan, the teacher, is standing near Raymond's desk. She has announced that the English lesson for the day will begin.

After picking up a pencil, Raymond opened his English workbook in which, as the teacher explained, certain blanks were to be filled in with words.

He held a piece of blue crayon in his left hand. The crayon was soft and somewhat flattened, evidently from earlier manipulation. Raymond kneaded it gently with his fingers while he listened to the teacher and looked at the workbook.

1:32—Noticing that Raymond had not yet written anything, Mrs. Logan said, "Here, what are you doing?" Her voice carried a slight reprimand. She continued more pleasantly and calmly, "You weren't here, dear, when we had this before. Here is where we are." She turned a page and pointed out the first direction.

Raymond read the direction at once.

After pausing thoughtfully for just a moment, he wrote in the answer.

As he wrote, Mrs. Logan read the second direction to the class and then paused for the children to fill in the blanks.

1:33—Raymond wrote busily.

Then he leaned back in his seat. His face wore a puzzled frown and his lips were pursed.

He looked at the book with even greater perplexity.

Suddenly his face cleared.

He quickly bent toward the book, gripped the pencil tight in his hand, and moved it toward the paper.

But this movement was arrested when his plastic pencil box fell to the floor with a terrific clatter. The teacher was disturbed by the noise.

Raymond, startled, ducked his head and pulled in his shoulders.

When he saw that his own supplies were involved, an expression of dismay and embarrassment spread over his face.

Then he noticed that the arm of Stanton, who sits in the next seat ahead, was resting on his desk.

1:34—The teacher hurried down the aisle to investigate.

Raymond looked up at her with increasing concern.

Then he said complainingly, "*He* pushed it off," pointing to Stanton.

Stanton nodded that he had, but said, "Well, George," the next boy in the row, "is always moving my desk."

George remonstrated, "No, but I didn't."

The teacher said calmly, "Well, let's adjust your desk."

Raymond sat still and listened to all this intently.

Soon after the start of the altercation, Ben Hutchings, who sits across the aisle from Raymond, quietly got out of his seat, stooped down, picked up the scattered supplies, and put them back into the plastic box.

Ben now closed the lid of the box and graciously returned it to Raymond.

Although he made no comment, Raymond was pleased. There was an expression of thanks on his face as he accepted the box.

1:35—Mrs. Logan brought the children back to the English lesson by reading the next direction.

It will be noted that the specimen record is cast in the language of everyday. The observers who report what goes into it are not asked to theorize; they are asked not to theorize. The result is that, while our description on this level has the merit of concreteness, it lacks the advantages of conceptual formulation. How may these advantages be gained?

THE BEHAVIOR EPISODE

It is difficult to describe in a systematic way any very extended part of a life continuum. One can hardly sort the many variables of a biography as a whole or of a month or a day or even an hour of behavior and its context. Adequate conceptual description here requires division of the continuum into manageable units.

This brings us to our second step in the process of describing psychological habitat and behavior. It consists in dividing the

specimen record into units that are small, simple, and clear enough to lend themselves to orderly analysis. We have tried to develop criteria for the discrimination of units the boundaries of which, in the record, correspond to real beginning and end points in the life of the person. There is no present room for discussion of these criteria. Here, though, are some titles of units that we have singled out in dividing the classroom part of the record on Raymond Birch. They may at least suggest the size range of the divisions:

Making May Basket
Taking Crayon from Stanton
Drawing Picture at Blackboard
Looking for Ben's Money
Wrapping Candy with Paper
Listening to Mrs. Logan Tell a Story

Each of these is a unit of directed action in a particular situation. We call every such part of a life continuum an *episode*. Raymond Birch, if our analysis is correct, engaged in 712 episodes of behavior on April 26, 1949. One hundred and sixty-six of these occurred in the classroom.

DESCRIPTION OF EPISODES

Episodes, rather than persons, can be used as the population units for a psychological ecology—of the classroom or any other behavior setting. Much as the behavior and total situation of a person are described more or less systematically in a case study, one can try to describe in a systematic way the behavior and immediate situation of an episode. This is what we undertake to do in the third step of our descriptive procedure. For the purpose we have developed a set of categories, some of them for analysis of what the person does in an episode, others for analysis of his psychological habitat at the time. An illustration of the way in which the categories are used may be helpful. The following, from the non-school part of Raymond's day, is the whole of an episode, *Casting with Father's Help*.

Raymond is out in his own back yard with Mr. Birch, his father, who holds a first rate casting rod. The time, 7:49 A.M.

Raymond walked back with Mr. Birch to the place where the latter had been casting.

On the way, Raymond asked if he could cast. Mr. Birch said, "Well, you'll have to untangle it if you get it all fouled up."

Raymond said, "Oh, no, I won't," in a joking way.

His father tied the plug to the end of the line.

7:50—Mr. Birch stood behind Raymond, showed him where to put his hands, and just what he should do to cast. He said, "Now, you have to be sure to keep your thumb here. The brake is on now, but I'll take it off." After adjusting the brake, he said, "Now, O.K."

Raymond cast. The weight went about 20 feet.

Raymond looked up at me and gave a big grin. This really pleased him.

The following are judgments made in applying three of the behavior categories to this unit.

| | |
|--------------------------------|---|
| Direction of action | Approach to a goal; not withdrawal, retreat, or consummation |
| Form of interpersonal activity | Conjunction: A "meeting of minds"; not mere juxtaposition; yet not full cooperation, for Raymond; not competition or conflict |
| Outcome of action | Success: Raymond coped with a difficulty and credited himself with achievement up to his own standards |

Turning to the situation side of the episode, we made these judgments in applying five of the habitat categories.

| | |
|---|--|
| Motivational structure | Direct: intrinsic interest; not indirect: no offer of reward or threat of punishment; no social pressure |
| Relative weight of present, past and future | Present alone important; past and future negligible |
| Sign of ruling valence | Plus; not minus |
| Clarity of cognitive structure | Medium, 3 on a scale of 5 points |
| Modality or kind of behavior by associate | Combination of nurturance and affiliation |

These and all of our other categories, with exceptions without importance here, have been applied to the 712 episodes in Raymond's day.

SAMPLE RESULTS

We have brought together for special consideration here the findings on selected categories for the classroom episodes in the day of Raymond Birch. In order to provide something in the way of a baseline for purposes of comparison, we also have compiled the findings on the same categories for the episodes in behavior settings which, unlike the classroom, were uncomplicated by the physical presence of a teacher, a parent, or any other adult. These latter units of behavior-joined-with-habitat were, except for internalized restraints, "adult-free"; they took place when Raymond was pretty much on his own as a plain, "unadulterated" boy.

The data for the two different groupings of episodes are assembled in Tables A and B.

As mentioned earlier, 166 episodes occurred in the classroom. Three hundred and one occurred in the settings without adults. Not all of the selected categories were used in describing the behavior and situation of every episode. For example, the category, *emotional expansiveness of associates*, could be used only when Raymond had an associate. Also, there were instances in which an analyst was unable to arrive at a judgment. The number of episodes to which a category was applied never fell below 105 and 123, respectively, for the classroom and adult-free settings. Each figure in parentheses, under *classroom* or *adult free*, gives the total number of episodes for which determinations were made for the given variable.

The significance levels of the differences in behavior and psychological habitat between the classroom and the adult-free settings have been tested. Owing to shortage of space and because the center of interest in the present discussion is more in methods than in results, we shall not report the confidence measures. The following quick, rough, and free digest of indications supported by the statistical findings may, however, suggest one sort of description that can be realized at this third stage of the larger descriptive procedure.

TABLE A
SAMPLE FINDINGS OF RAYMOND'S BEHAVIOR

| | | | <i>Percent of Episodes</i> | |
|--|-------------------|--|----------------------------|-------------------|
| | | | <i>Classroom</i> | <i>Adult free</i> |
| I Intensity (vigor) | Low | | 19.4 | 8.3 |
| | Medium | | 44.2 (165) | 43.9 (299) |
| | High | | 36.4 | 47.8 |
| II Efficiency | Low | | 19.3 | 7.6 |
| | Medium | | 58.6 | 70.8 (264) |
| | High | | 22.1 | 21.6 |
| III Creativity | Minimum | | 20.8 | 0.4 |
| | Min. to med. | | 70.2 | 78.1 |
| | Medium | | 8.3 (144) | 20.0 (265) |
| | Med. to max. | | 0.7 | 1.5 |
| | Maximum | | 0.0 | 0.0 |
| IV Level of Aspiration | LA > Abilities | | 1.9 | 0.8 |
| | LA = Abilities | | 92.4 (105) | 88.7 (123) |
| | LA < Abilities | | 5.7 | 10.5 |
| V Form of In- terpersonal Action | Competition | | 10.9 | 15.8 |
| | Juxtaposition | | 11.0 (128) | 17.8 (210) |
| | Cooperation | | 78.1 | 66.4 |
| VI Satisfaction in Activity | Dissatisfaction | | 16.1 | 10.0 |
| | Neutral Affect | | 30.5 (144) | 7.7 (259) |
| | Satisfaction | | 53.4 | 82.3 |
| VII Humor | | | 6.6 (166) | 13.9 (301) |
| VIII Restless Behavior | Restless move- | | | |
| | ments per hour | | 39.2 (166) | 7.2 (301) |

The data indicate that, in the classroom as compared with the behavior settings free of adults, Raymond's behavior was less intense or energetic, less efficient and creative or constructive, somewhat more cooperative when activities were undertaken with others, but generally less satisfying. They indicate that, in or out of the classroom in Midwest, Raymond rarely aimed to do either less or more than he was able to do; that he tried to be funny or reacted with enjoyment to something funny less often in than out; and that, in the classroom, he was much more restless.

Concerning Raymond's habitat, the data indicate that in the

TABLE B
SAMPLE FINDINGS ON RAYMOND'S PSYCHOLOGICAL HABITAT

| | | | <i>Percent of Episodes</i> | |
|------|--|-------------------------------|----------------------------|-------------------|
| | | | <i>Classroom</i> | <i>Adult free</i> |
| I | Size of Cognitive Field | Small | 82.5 | 9.6 |
| | | Medium | 16.9 (166) | 59.5 (301) |
| | | Large | 0.6 | 30.9 |
| II | Clarity of Cognitive Field | Low | 24.1 | 7.6 |
| | | Medium | 25.9 (166) | 23.9 (301) |
| | | High | 50.0 | 68.5 |
| III | Geniality of Total Situation | Everything bad | 20.9 | 4.1 |
| | | Neutral | 28.4 (148) | 11.2 (295) |
| | | Everything fine | 50.7 | 84.7 |
| IV | Centrality of Needs | Low | 53.1 | 45.5 |
| | | Medium | 35.5 (166) | 42.9 (301) |
| | | High | 11.4 | 11.6 |
| V | Strength of Needs | Low | 28.9 | 8.7 |
| | | Medium | 54.8 (166) | 54.0 (300) |
| | | High | 16.3 | 37.3 |
| VI | Kind of Motivation | Direct interest | 35.0 | 55.2 |
| | | Interest in activity as means | 33.1 (163) | 41.1 (299) |
| | | Promise of reward | 0.0 | 0.0 |
| | | "Threat" of punishment | 1.0 | 0.0 |
| | | Social pressure | 30.0 | 3.7 |
| VII | Frustration | | 26.5 (166) | 19.0 (301) |
| VIII | Conflict | | 21.8 (165) | 10.3 (301) |
| IX | Time Perspective | Present dominant | 45.2 | 73.4 |
| | | Past dominant | 0.0 | 1.0 |
| | | Future dominant | 2.4 (165) | 2.7 (300) |
| | | Mixed | 52.4 | 22.9 |
| X | Emotional Expansiveness of Associate(s) to Raymond | Negative | 13.4 | 6.5 |
| | | Neutral | 37.8 (127) | 15.8 (216) |
| | | Positive | 48.8 | 77.7 |
| XI | Evaluation by Associates | Disapproval | 17.9 | 3.8 |
| | | Matter-of-fact evaluation | 2.6 (151) | 2.1 (234) |
| | | Approval | 7.9 | 4.7 |
| | | No evaluation | 71.6 | 89.4 |

classroom as against the settings free of adults, the world of this boy was less clear, less genial, and smaller in the sense of offering fewer recognized and promising things to do. They indicate that Raymond was moved to do what he did more by social pressure and less by direct interest in the classroom; that, in this setting, he was more often frustrated or in conflict, but preoccupied less with the immediate present. The data indicate finally that, in the classroom, Raymond was warmed less by positive emotional expansiveness—feeling for him on the part of others—and subjected more to social disapproval.

The possibility of linking certain features of Raymond's behavior in the classroom with particular characteristics of his psychological habitat in this setting at once suggests itself. On grounds of experimental evidence or theory, one might consider, for example, derivation of the relatively inefficient, uncreative, unsatisfying behavior from the relatively high degree of frustration and conflict, together with the relatively small size, unclear cognitive structure, and low geniality of the total psychological situation. Actually, however, we do not feel that, on the basis of our data, many such derivations can be made with confidence at the present time. This explanatory step can be taken safely only after the inevitably long process of perfecting operational definitions for the behavior variables, on the one hand, and the habitat variables, on the other, is further advanced.

We have felt that high reliability of the judgments made in applying the categories is within the bounds of reasonable expectation. Reliable ratings of whole personalities have been made. It has appeared to us that, generally, single episodes of behavior as reported in a specimen record may provide more concrete and definite material on the basis of which to form judgments. When a rater is called upon for a judgment concerning a trait of a person, he must weigh widely ranging facts with many of which he has had no direct acquaintance. The rater of an episode has everything to be considered before him; and he has the advantage of access to the larger context of the unit formed by the more or less extended sequence of which it is a part. We are not ready to report upon the reliability of our analyses; but it can be said that there are indications of a satisfactory level of agreement between different analyzers of the same episodes.

CONCLUDING STATEMENT

Twenty-three percent of the episodes in the day of Raymond Birch occurred in the classroom. In approximately 70 percent of these Raymond interacted in some way with one or more persons.

These figures together call attention to the significance of the classroom as a facility for the study of social interaction; and they call attention to the practical need for information that will enable us to guide better the multitudinous social events of this behavior setting. Because it has been necessary to elaborate at some length upon general features of our methods, the present discussion has not brought the *special* problems of social interaction to a sharp focus. The potentialities in an ecological attack upon these problems may nonetheless have been indicated.

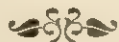
KURT LEWIN, RONALD LIPPITT, AND
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Patterns of Aggressive Behavior in Experimentally Created "Social Climates"

How much control should the teacher impose on a class and what techniques of control should he employ? When the exclusive objective of the school was the transmission of subject matter, this question did not arise in any significant way. Since the modern school, however, has increasing concern for socially centered objectives, inquiry into the kinds and effects of teacher-control techniques becomes highly important.

The following study is one of several on the effects of certain kinds of leadership on the social climate of children's groups and the ways in which children respond in these climates. The findings have been discussed widely by educators and have had a marked influence on educational thinking.

The three kinds of leadership involved here are labeled "authoritarian," "*laissez-faire*," and "democratic." Since these terms have a considerable emotional loading, it is important that the student consider carefully the way in which they are defined in the study.



A. PROBLEMS AND METHODS

The present report is a preliminary summary on one phase of a series of experimental studies of group life which has as its aim

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a scientific approach to such questions as the following: What underlies such differing patterns of group behavior as rebellion against authority, persecution of a scapegoat, apathetic submissiveness to authoritarian domination, or attack upon an outgroup? How may differences in subgroup structure, group stratification, and potency of ego-centered and group-centered goals be utilized as criteria for predicting the social resultants of different group atmospheres? Is not democratic group life more pleasant, but authoritarianism more efficient? These are the sorts of questions to which "opinionated" answers are many and varied today, and to which scientific answers, are, on that account, all the more necessary. An experimental approach to the phenomena of group life obviously raises many difficulties of creation and scientific control, but the fruitfulness of the method seems to compensate for the added experimental problems.

In the first experiment Lippitt organized two clubs of 10-year-old children, who engaged in the activity of theatrical mask-making for a period of three months. The same adult leader, changing his philosophy of leadership, led one club in an authoritarian manner and the other club in accordance with democratic techniques, while detailed observations were made by four observers. This study, reported in detail elsewhere (6), suggested more hypotheses than answers and led to a second and more extensive series of experiments by White and Lippitt. Four new clubs of 10-year-old boys were organized, on a voluntary basis as before, the variety of club activities was extended, while four different adult leaders participated. To the variables of authoritarian and democratic procedure was added a third, "*laissez-faire*" or group life without adult participation. Also the behavior of each club was studied in different "social climates." Every six weeks each group had a new leader with a different technique of leadership, each club having three leaders during the course of the five months of the experimental series. The data on aggressive behavior summarized in this paper are drawn from both series of experiments.

Some of the techniques used for the equating of groups have been described previously (4), but will be summarized here with the improvements in method of the second experiment. Before the clubs were organized the schoolroom group as a whole was studied. Using the sociometric technique developed by Moreno (8) the in-

terpersonal relations of the children, in terms of rejections, friendships, and leadership, were ascertained. Teacher ratings on relevant items of social behavior (e.g., teasing, showing off, obedience, physical energy) were secured, and observations were made on the playground and in the schoolroom by the investigators. The school records supplied information on intellectual status, physical status, and socio-economic background. From the larger number of eager volunteers in each room it was then possible to select from each schoolroom two five-member clubs, which were carefully equated on patterns of interpersonal relationships, intellectual, physical, and socio-economic status, in addition to personality characteristics. The attempt was not to equate the boys within a particular club, but to ensure the same pattern in each group as a whole.

In spite of the methods described above to control by selection some of the more elusive social variables, it was essential to use a number of experimental controls which would help to make the results more clear-cut. First of all, to check on the "individuality" of the club as a whole, each group was studied in different social atmospheres so that it could be compared with itself. A second question raised by the first experiment was that concerning the personality of the leader as a factor in the creating of social atmospheres. The second experiment, with four leaders, makes possible a comparison of the authoritarianism and democracy of four different leaders, and the "*laissez-faire*" method of two different leaders. In two cases it is also possible to compare the same atmosphere, created by two different leaders with the same club.

One other type of control seemed very important, the nature of the club activity, and the physical setting. Using the same club-rooms (two clubs met at the same time in adjacent but distinctly separate areas of the same large room) seemed to answer the latter problem, but the question of activity was more complex. The following technique was developed: a list of activities which were of interest to all the children was assembled (e.g., mask-making, mural painting, soap carving, model airplane construction, etc.). Meeting first, in chronological time, the democratic groups used these possibilities as the basis for discussion and voted upon their club activity. The authoritarian leaders were then ready, as their clubs met, to launch the same activity without choice by the members. The "*laissez-faire*" groups were acquainted with the variety of

materials which were available, but they were not otherwise influenced in their choice of activity; in their case, consequently, the activity factor could not be completely controlled.

The contrasting methods of the leaders in creating the three types of group atmosphere may be briefly summarized as in Table 1.

It should be clear that due to the voluntary nature of the group participation, and the coöperation of the parents and school systems, no radically autocratic methods (e.g., use of threats, instilling fear,

TABLE 1

| <i>Authoritarian</i> | <i>Democratic</i> | <i>Laissez-faire</i> |
|---|--|--|
| 1. All determination of policy by the leader. | 1. All policies a matter of group discussion and decision, encouraged and assisted by the leader. | 1. Complete freedom for group or individual decision, without any leader participation. |
| 2. Techniques and activity steps dictated by the authority, one at a time, so that future steps were always uncertain to a large degree. | 2. Activity perspective gained during first discussion period. General steps to group goal sketched, and where technical advice was needed the leader suggested two or three alternative procedures from which choice could be made. | 2. Various materials supplied by the leader, who made it clear that he would supply information when asked. He took no other part in work discussions. |
| 3. The leader usually dictated the particular work task and work companions of each member. | 3. The members were free to work with whomever they chose, and the division of tasks was left up to the group. | 3. Complete nonparticipation by leader. |
| 4. The dominator was "personal" in his praise and criticism of the work of each member, but remained aloof from active group participation except when demonstrating. He was friendly or impersonal rather than openly hostile. | 4. The leader was "objective" or "fact-minded" in his praise and criticism, and tried to be a regular group member in spirit without doing too much of the work. | 4. Very infrequent comments on member activities unless questioned, and no attempt to participate or interfere with the course of events. |

etc.) were used. Fairly congenial extra-club relationships were maintained with each member by the leader.

The kinds of data collected during the course of the experiments may be classed roughly as: (a) pre-club data, described above in relation to the problem of equating the groups; (b) observations of behavior in the experimental situation; and (c) extra-club information.

Observations of club behavior consisted of:

(a). A quantitative running account of the social interactions of the five children and the leader, in terms of symbols for directive, compliant, and objective (fact-minded) approaches and responses, including a category of purposeful refusal to respond to a social approach.

(b). A minute by minute group structure analysis giving a record of: activity subgroupings, the activity goal of each subgroup was initiated by the leader or spontaneously formed by the children, and ratings on degree of unity of each subgrouping.

(c). An interpretive running account of significant member actions, and changes in dynamics of the group as a whole.

(d). Continuous stenographic records of all conversation.

(e). An interpretive running account of inter-club relationships.

(f). An "impressionistic" write-up by the leader as to what he saw and felt from within the group atmosphere during each meeting.

(g). Comments by guest observers.

(h). Movie records of several segments of club life.

All of these observations (except *f*, *g*, and *h*) were synchronized at minute intervals so that side by side they furnish a rather complete cross sectional picture of the ongoing life of the group. The major purpose of this experiment in methodology of observation was to record as fully and with as much insight as possible the total behavior of the group, a distinct break away from the usual procedure of recording only certain pre-determined symptoms of behavior. The second aim was to ascertain whether data collected by this method could be fruitfully analyzed from both a sociological and psychological point of view (5).

Extra-club information is of the following types:

(a). Interviews with each child by a friendly "non-club" person during each transition period (from one kind of group atmosphere and leader to another) and at the end of the experiment, concerning

such items as comparison of present club leader with previous ones, with the teacher, and with parents; opinions on club activities; how the club could be run better; who were the best and poorest club members; what an ideal club leader would be like, etc.

(b). Interviews with the parents by the investigators, concentrating on kinds of discipline used in the home, status of the child in the family group (relations with siblings, etc.), personality ratings on the same scale used by the teachers, discussion of child's attitude toward the club, school, and other group activities.

(c). Talks with the teachers concerning the transfer to the school-room, of behavior patterns acquired in the club.

(d). Administration of a Rorschach test to each club member.

(e). Conversations with the children during two summer hikes arranged after the experiment was over.

These data were gathered with a view to correlating the individual pattern of behavior in the club situation with the types of group membership which existed outside the experiment, and with the more or less stable individual personality structure. The individual differences in "social plasticity" seem to be rather striking.

Two other points of experimental technique seem of interest. The first concerns the introduction of observers into the club situation. In Lippitt's first experiment it was found that four observers grouped around a table in a physically separated part of the club room attracted virtually no attention if it was explained at the first meeting that "those are some people interested in learning how a mask-making club goes; they have plenty to do so they won't bother us and we won't bother them." In the second experiment the arrangement was even more advantageous and seemed to make for equally unselfconscious behavior on the part of the clubs. In this set-up the lighting arrangement was such that the observers were grouped behind a low burlap wall in a darkly shaded area, and seemed "not to exist at all" as far as the children and leaders were concerned.

The second point of interest is the development of a number of "group test" situations, which aided greatly in getting at the actual social dynamics of a given group atmosphere. One test used systematically was for the leader to leave the room on business during the course of the club meeting, so that the "social pressure" factor could be analyzed more realistically. Another practice was for the

leader to arrive a few minutes late so that the observers could record the individual and "atmospheric" differences in spontaneous work initiation and work perspective. A third fruitful technique was that of having a stranger (a graduate student who played the role of a janitor or electrician) enter the club situation and criticize the group's work efforts. A rather dramatic picture of the results of this type of situation may be seen in Figures 5 and 6. Further variations of such experimental manipulations are being utilized in a research now in progress.

B. RESULTS

The analysis of the results from the second experiment is now proceeding in various directions, following two main trends: (a) interpretation of sociological or "group-centered" data; (b) interpretation of psychological or "individual-centered" data. The sociological approach includes such analyses as differences in volume of social interaction related to social atmosphere, nature of club activity, out-group relationship, differences in pattern of interaction related to outgroup and ingroup orientation, atmosphere differences in leader-group relationship, effect upon group structure pattern of social atmosphere and types of activity, group differences in language behavior, etc. The psychological approach includes such analyses as relation of home background to pattern of club behavior, range of variation of member behavior in different types of social atmosphere, patterns of individual reaction to atmosphere transitions in relation to case history data, correlation between position in group stratification and pattern of social action, etc. In this paper will be presented only certain data from the partially completed general analysis which are relevant to the dynamics of individual and group aggression.

We might first recall one or two of the most striking results of the first experiment (6). As the club meetings progressed the authoritarian club members developed a pattern of aggressive domination toward one another, and their relation to the leader was one of submission or of persistent demands for attention. The interactions in the democratic club were more spontaneous, more fact-minded, and friendly. Relations to the leader were free and on an "equality

basis." Comparing the two groups on the one item of overt hostility the authoritarian group was surprisingly more aggressive, the ratio being 40 to 1. Comparing a constellation of "ego-involved" types of language behavior (e.g., hostile, resistant, demands for attention, hostile criticism, expression of competition) with a group of objective or "nonemotive" behaviors, it was found that in the authoritarian group 73 per cent of the analyzed language behavior was of the "ego-involved" type as compared to 31 per cent in the democratic club. Into the objective category went 69 per cent of the behavior of the democratic group as compared to 37 per cent of the language activities of the authoritarian group.

A second type of data related to the dynamics of aggression as it existed in the first experiment may be seen in Figure 1. Twice during the course of the meetings of the authoritarian club the situation shifted from one of mutual aggression between all members to one of concentrated aggression toward one member by the other four. In both cases the lowered status of a scapegoat position was so acutely unpleasant that the member left the group, rationalizing his break from the club by such remarks as, "The doctor says my eyes

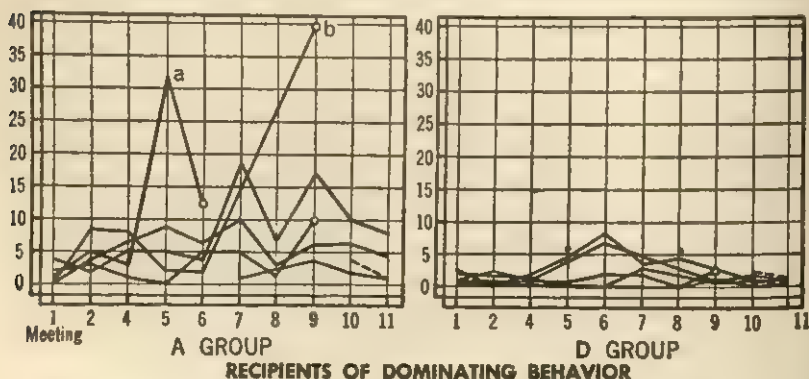


FIGURE 1. The emergence of scapegoats in an autocratic atmosphere (Lippitt, 1937).

The curves (which indicate the amount of aggression directed against each individual) show a much lower general level of dominating behavior in the democratic (D) than in the autocratic (A) group. Twice during the meetings of the authoritarian club the aggression of four members was focused upon the fifth (a and b). In both cases the scapegoat dropped out of the group immediately or soon afterwards.

are so bad I'll have to play outdoors in the sunshine instead of coming to club meetings." Interestingly enough the two members who were singled out for persecution had been rated by the teachers as the two leaders in the group, one of them scoring second in popularity by the sociometric technique, as well as being physically the strongest. After the emergence of both scapegoats, there was a rather brief rise in friendly coöperative behavior between the other members of the group.

In the second experiment (see previous discussion, p. 4) there were five democratic, five autocratic, and two "*laissez-faire*" atmospheres. The fact that the leaders were successful in modifying their behavior to correspond to these three philosophies of leadership is clear on the basis of several quantitative indices. For instance, the ratio of "directive" to "compliant" behavior on the part of the autocratic leaders was 63 to 1; on the part of the democratic leaders it was 1.1 to 1. The total amount of leader participation was less than half as great in "*laissez-faire*" as in either autocracy or democracy.

The data on aggression averages in these three atmospheres are summarized in Figures 2, 3, and 4. All of them indicate average amounts of aggression per fifty-minute, five-member club meeting. They represent behavior records, as recorded by the interaction observer, and include all social actions, both verbal and physical, which he designated as "hostile" or "joking hostile." Figure 2 shows especially the bimodal character of the aggression averages in autocracy; four of the five autocracies had an extremely low level of aggression, and the fifth had an extremely high one. For comparison, a sixth bar has been added to represent aggression in Lippitt's 1937 experiment, computed on the same basis. It is obviously comparable with the single case of exceptionally aggressive behavior in the 1938 experiment. For comparison, also, four lines have been added which indicate the aggression level in the two *laissez-faire* groups, in the four 1938 democracies, and in Lippitt's 1937 democracy. It can be seen that two of the six autocracies are above the entire range of democracies, and are in this respect comparable with the two *laissez-faire* groups. The other four autocracies are at the opposite extreme, below the entire range of the democracies.

Figures 3 and 4 show especially the character of the experimental controls. Together, they show how each of four groups was carried through three different periods with three different adult

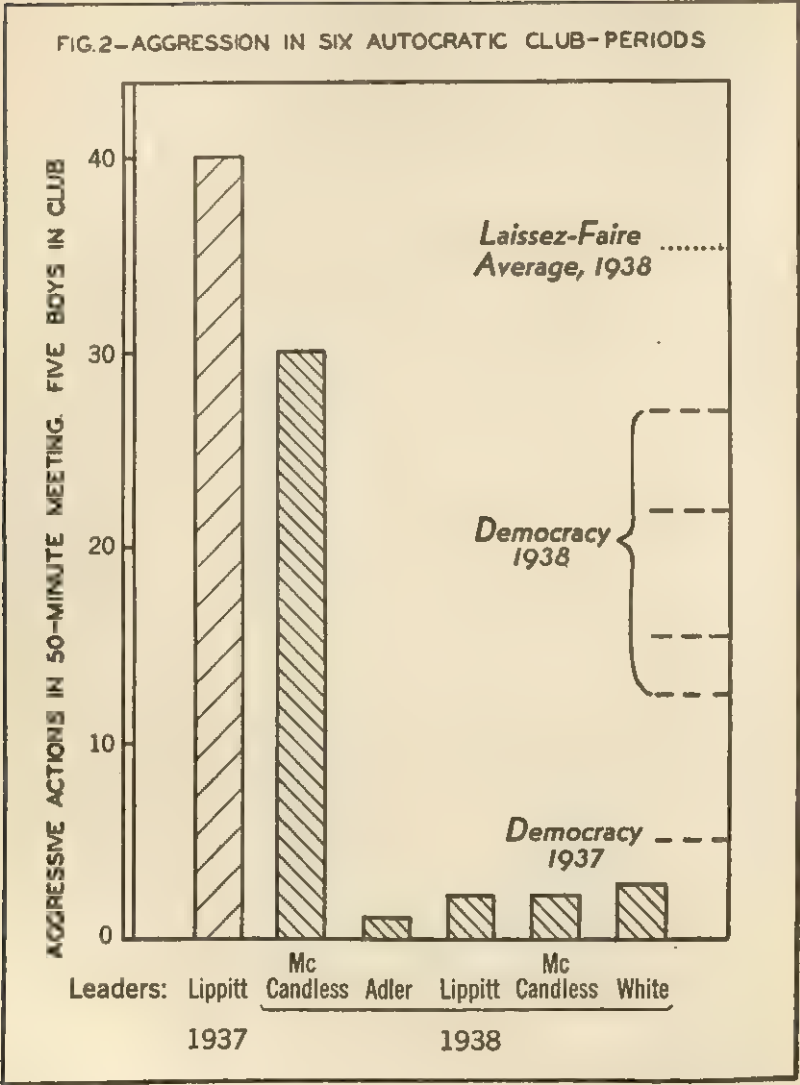


FIGURE 2. Aggression in autocracy. The amount of aggression is either very great or very small compared with aggression in democracy.

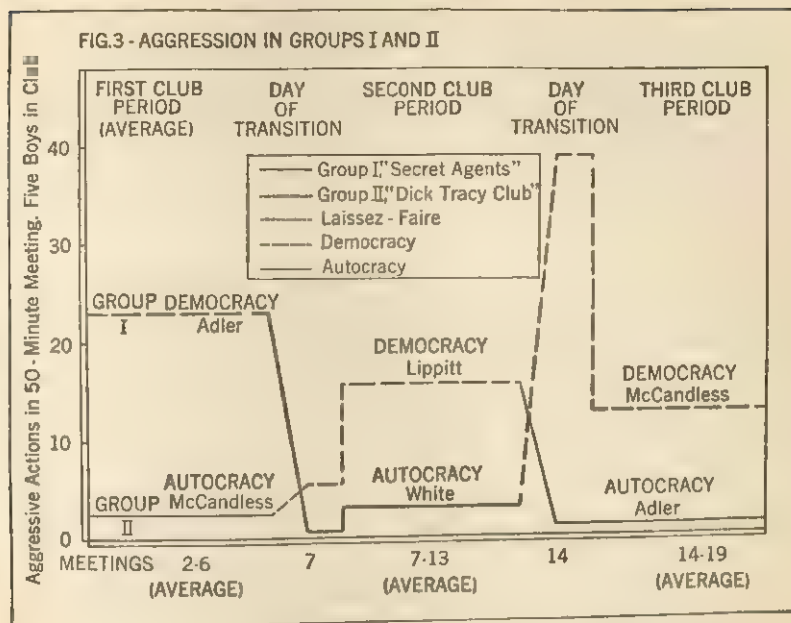


FIGURE 3. The same group in different atmospheres.

In each group, aggression was at a medium level in democracy and at a very low level in autocracy. Note that the leaders in the third period were the same as in the first, but reversed. Note also the sharp rise of aggression in one group on the day of transition to democracy. Group I shows "release of tension" on the first day of freedom (14) after apathetic autocracy. The name of the leader is indicated below that of the atmosphere.

leaders. The relative importance of the deliberately created social atmosphere, as compared with either the personality make-up of the group or the personality of the adult leader, can be estimated from the character of these curves. It is clear that the same group usually changes markedly, and sometimes to an extreme degree, when it is changed to a new atmosphere under a different leader. In such transitions the factor of group personnel is held relatively constant, while the factors of leader personality and social atmosphere are varied. In addition, the factor of leader personality was systematically varied, as can be seen if the four curves are compared with each other. Each of the four leaders played the role of a democratic leader at least once; also each played the role of an autocrat at least

once; two of them (Adler and White) played in addition the role of bystander in a "*laissez-faire*" group. One leader (Lippitt) was democratic with two different groups; and one (McCandless) was autocratic with two different groups. Through this systematic variation of both club personnel and leader's personality, the effects of the deliberately created social atmosphere (autocracy, democracy, *laissez-faire*) stand out more clearly and more reliably than would otherwise be possible.

In Figure 3, for instance, the two curves both tell the same story: a moderate amount of aggression in democracy and an abnormally small amount in autocracy, regardless of the personality of the leader (note that the roles of Lippitt and McCandless were reversed, with each playing once the role of autocrat and once the role of democratic leader), and regardless of the personnel of the group itself (note the the curves cross once when the atmospheres are reversed, and cross back again when the atmospheres return to what they were at the beginning). In Figure 4, the two *laissez-faire* atmospheres give very high levels of aggression although different groups and different leaders are involved. The most extreme change of behavior recorded in any group occurred when Group IV was changed from autocracy (in which it had shown the apathetic reaction) to *laissez-faire*. One of the autocratic groups (Figure 4) reacted apathetically, the other very aggressively. The aggressiveness of Group III may be due to the personalities of the boys, or to the fact that they had just previously "run wild" in *laissez-faire*.

The average number of aggressive actions per meeting in the different atmospheres was as follows:

| | |
|---------------------------------|----|
| <i>Laissez-faire</i> | 38 |
| Autocracy (aggressive reaction) | 30 |
| Democracy | 20 |
| Autocracy (apathetic reaction) | 2 |

Critical ratios for these comparisons have not yet been computed. The data are comparable, however, with Lippitt's 1937 data, in which the critical ratios for the more important indices ranged between 4.5 and 7.5.

In the interpretation of these data it is natural to ask: Why are the results for autocracy paradoxical? Why is the reaction to autoc-

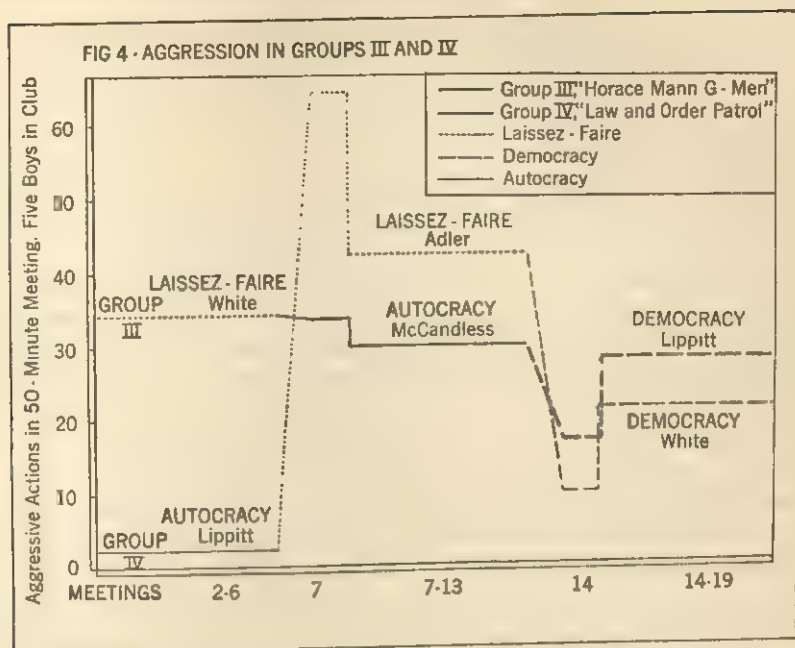


FIGURE 4. The same group in different atmospheres.

Group IV shows changes to the levels typical for each atmosphere. It shows also the "release of tension" on the first day of freedom (7) after apathetic autocracy. Group III seemed resistant to change; it was relatively aggressive even in democracy.

racy sometimes very aggressive, with much rebellion or persecution of scapegoats, and sometimes very nonaggressive? Are the underlying dynamics in these two cases as different as the surface behavior? The high level of aggression in some autocracies has often been interpreted mainly in terms of tension, which presumably results from frustration of individual goals. Is it, then, an indication of non-frustration when the aggression level in some other autocracies is found to be extremely low?

Four lines of evidence in our experiments indicate that this is not the case, and that the low level of aggression in the apathetic autocracies is not due to lack of frustration.

First of all, there are the sudden outbursts of aggression which occurred on the days of transition from a repressed autocratic atmos-

phere to the much freer atmosphere of democracy or *laissez-faire*. Two of these are well illustrated in Figure 4. The boys behaved just as if they had previously been in a state of bottled-up tension, which could not show itself overtly as long as the repressive influence of the autocrat was felt, but which burst out unmistakably when that pressure was removed.

A second and very similar type of evidence can be obtained from the records on the days when the leader left the room for 10 or 15 minutes. In the three other atmospheres (*laissez-faire*, aggressive autocracy, and democracy) the aggression level did not rise when the leader left the room. In the apathetic autocracies, however, the level of aggression rises very rapidly to 10 times its former level. These data should not be overstressed, because aggression even then does not rise to a level significantly above that of the other atmospheres. It is so extremely low in the apathetic atmosphere that even multiplication by 10 does not produce what could be called a high level of aggression. (The effect of the leader's absence is shown more significantly in a deterioration of work than in an outburst of aggression.) Nevertheless, the rapid disappearance of apathy when the leader goes out shows clearly that it was due to the repressive influence of the leader rather than to any particular absence of frustration. In this connection it should be added that the autocratic leader never forbade aggression. His "repressive influence" was not a prohibition created by explicit command but a sort of generalized inhibition or restraining force.

In the third place, there are the judgments of observers who found themselves using such terms as "dull," "lifeless," "submissive," "repressed," and "apathetic" in describing the nonaggressive reaction to autocracy. There was little smiling, joking, freedom of movement, freedom of initiating new projects, etc.; talk was largely confined to the immediate activity in progress, and bodily tension was often manifested. Moving pictures tell the same story. The impression created was not one of acute discontent, by any means, and the activities themselves were apparently enjoyable enough so that the net result for most of the boys was more pleasant than unpleasant. Nevertheless, they could not be described as genuinely contented.

The fourth and perhaps the most convincing indication of the existence of frustration in these atmospheres is the testimony of the boys themselves. They were individually interviewed, just before

each day of transition to a new atmosphere, and again at the end of the whole experiment. The interviewing was done by an adult who had not served as a leader in the boy's own group. On the whole good rapport was achieved, and the boys talked rather freely, comparing the three leaders under whom their club had been conducted. (For them it was a question of comparing leaders they liked or did not like, as they were unaware of the deliberate change in the behavior of the same leader from one atmosphere to another or of the nature of the experiment.) With surprising unanimity the boys agreed in a relative dislike for their autocratic leader regardless of his individual personality. Nineteen of the 20 boys liked their leader in democracy better than their leader in autocracy. The twentieth boy, as it happened, was the son of an army officer (the only one in the group), and consciously put a high value upon strict discipline. As he expressed it, the autocratic leader "*was the strictest, and I like that a lot.*" The other two leaders "*let us go ahead and fight, and that isn't good.*" For the other 19, strictness was not necessarily a virtue, their description of the autocrat being that he was "*too strict.*" Typical comments about the autocrat were: "*he didn't let us do what we wanted to do*"; "*he wouldn't let us go behind the burlap*"; "*he was all right mostly—sort of dictator-like*"; "*we just had to do things; he wanted us to get it done in a hurry*"; "*he made us make masks, and the boys didn't like that*"; "*the other two guys suggested and we could do it or not, but not with him*"; "*we didn't have any fun with him—we didn't have any fights.*" Typical comments about the democratic leader were: "*he was a good sport, worked along with us and thinks of things just like we do*"; "*he never did try to be the boss, but we always had plenty to do*"; "*just the right combination—nothing I didn't like about him*"; "*we all liked him; he let us tear down the burlap and everything.*" These comments were almost uniformly dependent upon the role played by the leader, and were exactly reversed when he played a different role.

As between the leaders in autocracy and "*laissez-faire.*" the preference was for the "*laissez-faire*" leader in seven cases out of ten. The three boys who preferred the autocrat made such comments about the "*laissez-faire*" leader as: "*he was too easy-going*"; "*he had too few things for us to do*"; "*he let us figure things out too much*"; in contrast the autocrat "*told us what to do, and we had something*

to do all the time." For the other seven, even disorder was preferable to rigidity: "we could do what we pleased with him"; "he wasn't strict at all."

Another form of aggression was outgroup hostility, as manifested especially in two "wars" between clubs meeting in the same large room at the same time. Both wars seemed to be mainly in a spirit of play. They were much more like snowball fights than serious conflicts. (This is one more reason why in this case one should be cautious in comparing adult political phenomena directly with our data on small groups of children.) Our two small "wars" are interesting in their own right, however, especially since the same general constellation of factors seemed to be operating in both cases.

The curves of rising hostility, computed for five-minute intervals, are shown in Figures 5 and 6. From these curves it can be seen

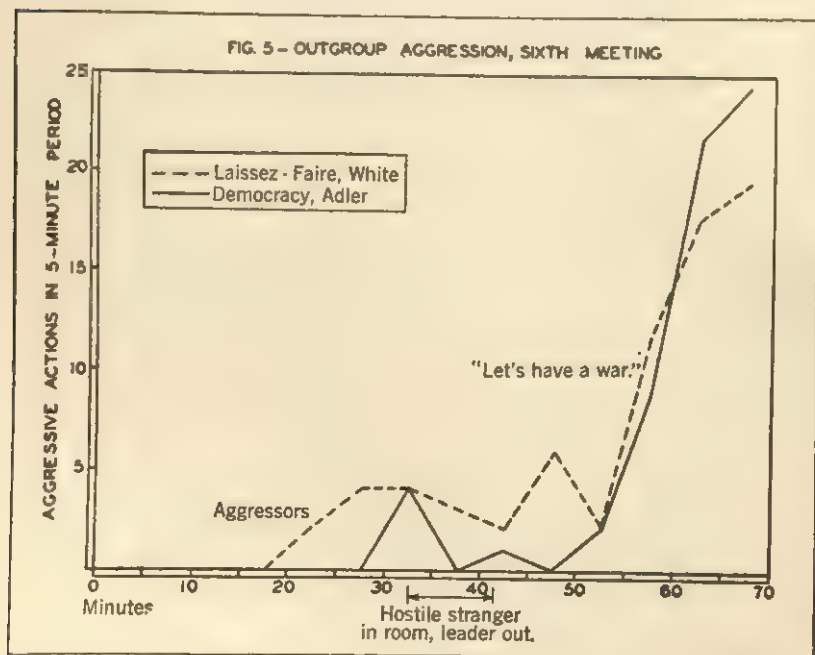


FIGURE 5. Conflict between groups after intrusion of hostile stranger. After the stranger left, strong hostility developed between the two groups. Before the major conflict, minor hostilities had already occurred, with one or two members of the *laissez-faire* group playing the role of aggressors.

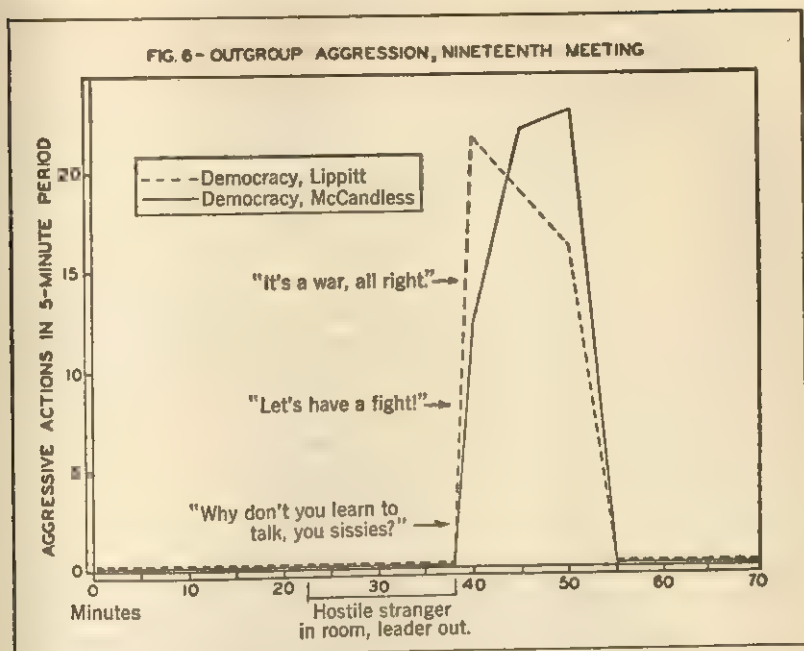


FIGURE 6. Conflict between groups after intrusion of hostile stranger. The intrusion of a hostile stranger was followed by intergroup conflict (as in Figure 5). In this case the hostilities began suddenly, rising within four minutes almost to their maximum level.

that the first "war" started gradually, with a long period of minor bickering and name calling, followed by a much steeper gradient of increasing hostility. The overt hostilities consisted of throwing water, small pieces of clay (which nearly always missed their mark), and sometimes water color paint, flicked from the end of a long paint brush. No one was hurt. The second conflict (Figure 6) began much more suddenly. Name calling began in the first minute after the "hostile stranger" left the room, and almost immediately the boys seemed to remember their previous conflict and to wish a repetition of it. Beginning with verbal aggression, such as, "Why don't you learn to talk, you sissies?" they passed within three minutes to throwing small pieces of soap (small pieces of soap statuettes, which they had carved, were lying about), and within five minutes nearly all the boys on both sides were wholeheartedly participating. This

difference in steepness of the hostility gradient was perhaps due in part to a higher level of tension or to weaker restraining forces on the later occasion, but it seemed to be due also to a cognitive difference. On the later occasion the pattern of intergroup conflict had been established; it was, by that time, a part of the boys' "cognitive structure"—a clearly defined region which they could enter or not as they chose; and since they had found the first "war" to be very pleasantly exciting, they readily and quickly entered the same region again when the general psychological situation was conducive to conflict. In this connection it may be noted that the second conflict was labelled verbally almost immediately, while the first one was not labelled until it was already well under way. On the first occasion the shout, "*Let's have a war!*" went up long after the minor hostilities had begun; on the second occasion, one boy shouted, "*Let's have a fight,*" only two minutes after the name calling began, and another one legalized it two minutes later with the words, "*It's a war all right.*"

Certain similarities between the two days of conflict suggest some very tentative hypotheses as to the psychological factors conducive to this sort of conflict. In the first place, both occurred on days when, with the adult leader absent, a hostile stranger had been in the room and had criticized the work which the boys were doing. This had been deliberately planned as a "test situation"; a graduate student, playing the role of a janitor or an electrician, was the hostile stranger. It may be doubtful whether or not the term "substitute hate object" is an appropriate one here; but there was no question in the observers' minds that in both cases the intrusion of the stranger tended to disorganize the regular play activities of the clubs and to build up a tense, restless psychological condition which was conducive to intergroup conflict. In the second place, both conflicts started when no respected adult was present. In the first one the main aggressors were unquestionably the *laissez-faire* group (see Figure 5). Their leader was physically present at the time, but he was psychologically unimportant. The second conflict began when the leaders on both sides were out of the room, and by the time the leaders returned, it had gathered great momentum. In the third place, both conflicts occurred at a time when there was no absorbing group activity as an alternative. The first one began at a time when the members of the *laissez-faire* group seemed unusually bored and

dissatisfied with their own lack of solid accomplishment. The second one began after the boys had become somewhat bored with their soap carving, and after this individualistic activity had been further disrupted by the criticisms of the stranger.

The free direct expression of aggression by the "wars" following frustration in the *laissez-faire* and democratic situations offers a contrast to several other patterns of expression which were observed in some of the authoritarian situations. These types of behavior might be briefly labelled: (a) a "strike"; (b) rebellious acts; (c) reciprocal aggression among all members; (d) scapegoat attack; (e) release behavior after a decrease in leader pressure; (f) aggression against impersonal "substitute hate objects."

Both the "strike" and symptoms of rebellious action occurred in the aggressive type of autocracy. About the middle of the series of six meetings the club members went to their teacher with a letter of resignation signed by four of them. They asked their teacher to give this to the leader when he came to get them after school. The teacher refused to act as a go-between, suggesting that the boys go to the leader directly, but when he appeared after school, courage seemed to wane and they all went to the meeting as usual. Overt rebellious acts were of the following nature: breaking a rule by carving on the posts in the clubroom (while casting sidelong glances at the leader), deliberately walking behind the burlap walls of the clubroom without permission (mentioned to an interviewer), leaving the club meeting early, and pretending not to hear when spoken to by the leader. The third and fourth kinds of behavior were also typical of aggressive authoritarianism and have been mentioned in describing the first experiment during which two scapegoats emerged. As has been mentioned, changes in amount of aggression while the leader was out, and days of transition to a freer atmosphere were especially good indicators of the existence of unexpressed tension in the apathetic autocracies.

Two very interesting examples of what we have tentatively called "release behavior through an impersonal substitute hate object" are worthy of description. During the eleventh meeting of the first experiment the authoritarian group was given a chance to indicate by secret ballot whether they would like the club to stop or continue for several more meetings. We may go to an observer's record for further comments:

Peculiar actions follow the leader's announcement that because of the vote there will be no more meetings after today. The leader asks *RO* and *J* to put the paper on the floor as usual. They put it down and then run and jump on it time and again in a wild manner. The group masks are divided among the members and *J* immediately begins to throw his around violently, pretending to jump on it. He throws it down again and again, laughing. *R* wants to know if it won't break, then starts to throw his down too. Later *J* and *RO* chase each other around the room wildly with streamers of towelling. . . .

Rather clearly the work products of this authoritarian atmosphere seemed to be the objects of aggressive attack rather than prideful ownership.

During a last meeting of the second experiment a rather similar burst of behavior occurred in one of the democratic groups. The group was highly involved in an activity of making an oil painting on glass. While the leader was out for a short time (by arrangement) a student in the janitor role came in to sweep. From the running accountant's record of the 20-second minute we find,

He is making dirt fly and sweeping it toward the group. They all begin to cough but don't move from their work.

Several minutes later we find the comment,

Janitor has almost swept them away, but still no hostile response. The project seems to have a very high valence.

Five minutes later the janitor had gotten them out of their chairs in order to sweep, then

the janitor accidentally knocks a piece of their glass on the floor. They all yell and *R* makes as if to throw something at him. *F* says that if the leader were here he would beat up the janitor.

Five minutes later, after a number of comments criticizing the art work of the club, the janitor left. The members dropped their work completely, climbed the rafters and made considerable noise. On the thirty-sixth minute we find,

R comes down from the rafter and begins to complain about the janitor, *L* joins him and they all complain bitterly and loudly.

Within three minutes the group began to destroy a large wooden

sign upon which they had painted the club name. Such comments as this appear in the running account,

F is wielding two hammers at once. . . . *R* is busy pulling out all the nails. . . . They are excited. . . . *F* knocks the first hole through it. . . . *R* tries to caution *F* for a minute, and then gets busy himself . . . their unexpressed aggression toward the janitor is taking a violent outlet . . . they are all very serious and vicious about the destruction of the sign . . . they seem to be getting a great deal of "pure animal pleasure" of the pillage.

The meeting ended with three or four minutes of pleasant conversation.

C. INTERPRETIVE COMMENTS

From the many theoretical problems involved we should like to discuss but one, namely, the problem of aggression and apathy. Even here we wish to show the complexity of the problem and its possible attack from a field theoretical point of view rather than to set forth a definite theory.

It is not easy to say what aggression is, that is, if one is not satisfied with mere verbal definition. One important aspect obviously is that one group or an individual within a group turns against another group (or individual). In case these groups are subgroups of one original group, it can be called aggression *within a group*, otherwise aggression *against an outgroup*.

Both kinds of aggression occurred in our experiments. All of these aggressions were spontaneous in character. In other words, it was not a situation where a group of people are ordered by a politically dominating power (like the state) to indulge in a certain type of directed activity called war. On the whole the aggression was the outcome of the momentary emotional situation, although in two cases the aggressions had definitely the character of a fight of one group against another group and showed a certain amount of coöperative organization within each group.

It is necessary to mention four points which seem to play a dominant role in the spontaneous aggressions: tension, the space of free movement, rigidity of group structure, and the style of living (culture).

1. *Tension*

An instance where tension was created by *annoying* experiences occurred when the group work was criticized by a stranger (janitor). There were two cases where fighting broke out immediately afterwards.

In the autocratic atmosphere the behavior of the leader probably annoyed the children considerably (to judge from the interviews reported above).

In addition, there were six times as many directing approaches to an individual by the leader in autocracy than in democracy (Figure 7). It is probably fair to assume that the bombardment with such frequent ascendant approaches is equivalent to higher *pressure* and that this pressure created a higher tension.

2. *Narrow Space of Free Movement as a Source of Tension*

On the whole, even more important than this single annoying experience was the general atmosphere of the situation. Experiments in individual psychology (1) seemed to indicate that lack of space of free movement is equivalent to higher pressure; both conditions seem to create tension. This seemed particularly true if an originally larger space was narrowed down (one is reminded here of the physical tension created by decreasing volume, although one should not overstress the analogy).

Our experiments seemed to indicate that a similar relation between the narrow space of free movement and high tension holds also in regard to groups. The space of free movement in autocracy was smaller in relation to the activities permitted and the social status which could be reached (Figures 8 and 9). In *laissez-faire*, contrary to expectations, the space of free movement was not larger but smaller than in democracy, partly because of the lack of time perspective and partly because of the interference of the work of one individual with the activities of his fellows.

3. *Aggression as the Effect of Tension*

The annoying occurrences, the pressure applied by the leader, and the lack of space of free movement, are three basic facts which

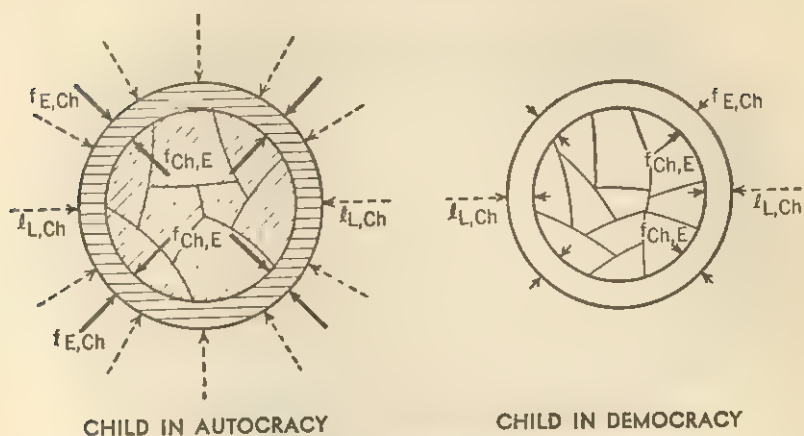


FIGURE 7. Leader pressure and child tension.

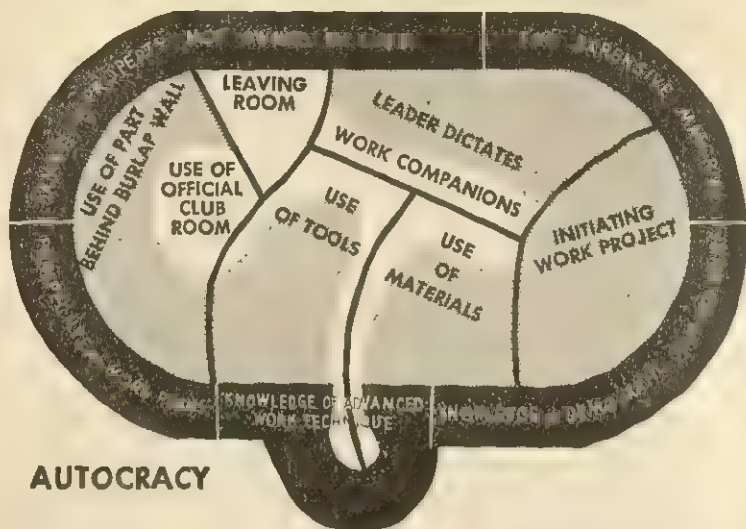
In the authoritarian situation the leader makes six times as many directing approaches ($I_{L,Ch}$) to the child member as in the democratic situation. This creates social pressure (equivalent to forces $f_{E,Ch}$ of the environment on the child) and therefore a higher state of tension in the child in the autocratic group; this tension demands some sort of outlet toward the environment (equivalent to forces $f_{Ch,E}$).

brought up a higher tension. Our experiments indicate that this higher tension might suffice to create aggression. This seems to be of theoretical importance; obviously some aggressive acts can be viewed mainly as a kind of "purposive" action (for instance, to destroy a danger), and one might ask whether or not this component is an essential part in the causation of any aggression. In our experiments, the two wars between the two outgroups can hardly be classified in this way. They seemed to be rather clear cases where aggression was "emotional expression" of an underlying tension.

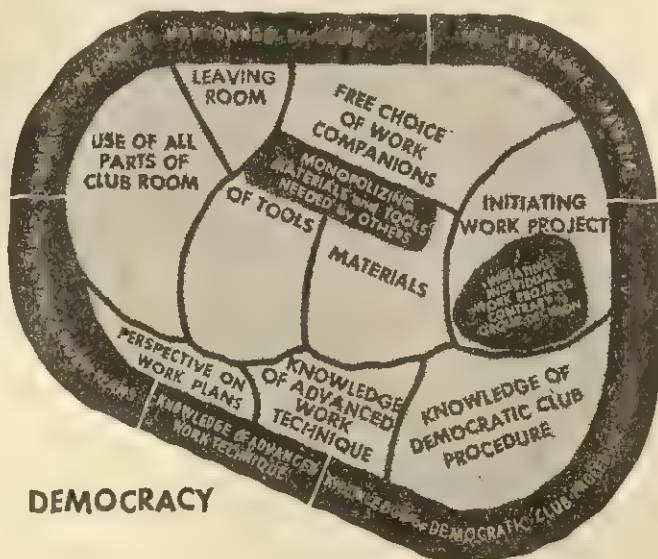
4. Rigidity of Group Structure

However, to understand aggression one will have to realize that tension is only one of the factors which determine whether or not an aggressive action will take place. The building up of tension can be said to be equivalent to the creation of a certain type of need which

SPACE OF FREE MOVEMENT



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might express itself in aggressive action. Tension sets up the driving force (2) for the aggression (in the two situations with which we are dealing). However, whether these driving forces actually lead to aggression or to some other behavior, for instance that of leaving the group, depends on additional characteristics of the situation as a whole. One of these seems to be the rigidity of the social position of the person within the group.

Aggression within a group can be viewed as a process by which one part of the group sets itself in opposition to another part of the group, in this way breaking the unity of the group. Of course, this separation is only of a certain degree.

In other words, if M indicates a member or subgroup and Gr the whole group, an aggression involves a force acting on the subgroup in the direction away from the main group ($f_{M \rightarrow Gr}$) or other part of the subgroup. From this it should follow theoretically that if a subgroup can easily locomote in the direction away from the group it will do so in case this force shows any significant strength. In other words, a strong tension and an actual aggression will be built up only in case there exist forces which hinder the subgroup from leaving the group (Figure 10).

Cultural anthropology gives examples which might be interpreted from this angle. The Arapesh (7), for instance, are living in a society where everyone is a member of a great variety of different groups and seems to shift easily from one group to another; it is a society without rigidly fixed social position. The fact that they show extremely little aggression might well be linked with this lack of rigid social structure.

Another example might be seen in the fact that adolescents who have been kept within the family probably show more aggression; in other words, the more rigid the family structure the more difficult it is for them to move from childhood to adulthood.

An additional example is the well-known fact that narrow fam-

FIGURES 8 and 9. Space of free movement in autocracy and democracy.

In the autocratic situation the space of free movement (white) was originally bounded only by the limitation in ability and knowledge (black) of the members, but was soon limited much further by the social influence of the leader (gray). In democracy the space was increased with the help of the leader.

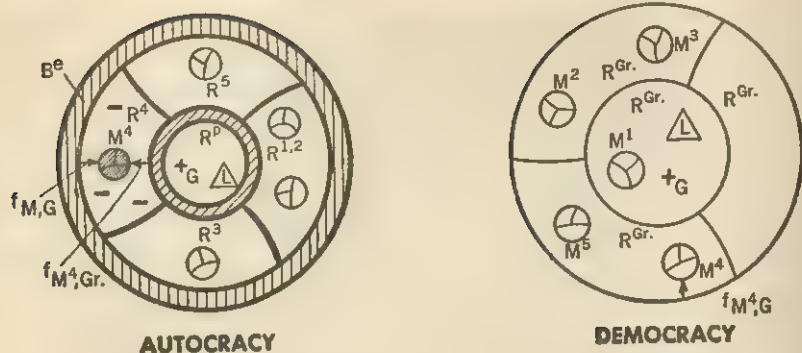


FIGURE 10. Rigidity of group structure as a tension factor.

In autocracy where each member or subgroup ($M^1, M^2 \dots M^5$) has a circumscribed region of activity ($R^1, R^2 \dots R^5$), and especially where the central regions of group life (policy formation R^p) are inaccessible to most members, rigid barriers (B) to own goals (G) continually frustrate members' efforts. The member's own position in the group structure (R^4) therefore acquires a negative valence, usually creating a force away from group membership ($f_{M^4, -Gr}$). But in rigid group structures a restraining barrier (B^1) keeps members or subgroups from leaving until a very high state of tension develops.

In democracy where all group regions (R^{Gr}) are accessible to all members ($M^1, M^2 \dots M^5$), their own goals (G) are more easily attained and no such frustrating situation develops.

ily ties which serve to make it difficult for husband and wife to leave each other may make aggression between them particularly violent.

In our experiment, autocracy provided a much more rigid social group than democracy. It was particularly difficult for the members of an autocracy to change their social status (3). On the other hand, in both groups the member did not like to leave the group as a whole because of the interest in the work project and the feeling of responsibility to the adult leader.

On the whole, then, the rigidity of the group will function as a restraining force (2) against locomotion away from the group, or from the position within the group. Sufficient strength of this restraining force seems to be one of the conditions for the building up of a tension which is sufficiently high to lead to aggression.

It can be seen easily that the barriers limiting the space of free movement may have a similar function. We mentioned above that

a narrow space of free movement seems to be equivalent to pressure, and, in this way, creates tension. At the same time, the barriers prevent locomotion, thus providing the restraining forces necessary for building up higher tension.

It was already mentioned that these restraining forces are particularly strong in our autocratic group (Figure 10).

5. *Style of Living (Culture)*

Whether or not a given amount of tension and given restraining forces will cause a person to become aggressive depends finally upon the particular patterns of action which are customarily used in the culture in which he lives. The different styles of living can be viewed as different ways a given problem is usually solved. A person living in a culture where a show of dominance is "the thing to do" under certain conditions will hardly think of any other way in which the solution of this problem may be approached. Such social patterns are comparable to "habits." Indeed, individual habits as well as cultural patterns have dynamically the character of restraining forces against leaving the paths determined by these patterns. In addition, they determine the cognitive structure which a given situation is likely to have for a given individual.

For the problem of aggression, this cultural pattern, determined by the group in which an individual lives and by his past history, is of great importance. It determines under what conditions aggression will be, for the individual concerned, the "distinguished path" to the goal (2). It determines, furthermore, how easily a situation will show for him a cognitive structure where aggression appears to be one possible path for his action (Figure 11).

The factors named are sufficient to warn against any "one-factor" theory of aggression. Here, as in regard to any other behavior, it is the specific constellation of the field as a whole that determines whether or not aggression will occur. In every case one has to consider both the driving and the restraining forces and the cognitive structure of the field. Such a field theoretical approach seems to be rather arduous. On the other hand, only in this way will one be able to understand for instance the paradox of behavior that autocracy may lead either to aggression or to apathy. It was stated

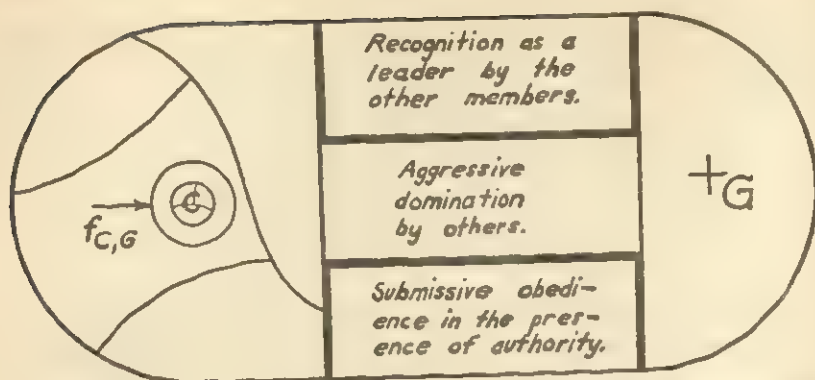


FIGURE 11. Different styles of living as represented by distinguished paths (aggressive autocracy).

The goal (G) of maximum social status and space of free movement can be reached by one or more of several procedures depending on actual possibilities and the prevailing mode of behavior in that group. In our "experimentally created cultures," the distinguished path to G was for a child (C) in aggressive autocracy that of aggressive domination of other members. In a similar situation the distinguished path for a member of democratic groups seemed to be that of gaining voluntary recognition of the other members as a leader through work and social efforts. In the situation of apathetic authoritarianism the path seemed to be that of submissive obedience to authority, which might win praise from the leader.

that aggression is partly to be viewed as an emotional outbreak due to tension and that this tension, in turn, is due to pressure and restraining forces (lack of space of free movement). We have apathy when the pressure and the restraining forces from without are kept stronger than the forces ($f_{C \rightarrow B}$ in Figure 7) within the person which lead to the emotional expression, and are due to the tension. Whether or not the forces from without or those from within are stronger depends upon the absolute amount of pressure and also on the "willingness" of the person to "accept" the pressure.

The field theoretical approach also provides indications for the circumstances under which one might generalize the results of such experimental group studies. One must be careful of making too hasty generalizations, perhaps especially in the field of political science. The varieties of democracies, autocracies, or "laissez-faire" atmospheres are, of course, very numerous. Besides, there are always

individual differences of character and background to consider. On the other hand, it would be wrong to minimize the possibility of generalization. The answer in social psychology and sociology has to be the same as in an experiment in any science. The essence of an experiment is to create a situation which shows a certain pattern. What happens depends by and large upon this pattern and is largely although not completely independent of the absolute size of the field. This is one of the reasons why experiments are possible and worthwhile.

The generalization from an experimental situation should, therefore, go always to those life situations which show the same or sufficiently similar general patterns. This statement includes both the rights and the limitations of generalization.

D. SUMMARY

1. In a first experiment, Lippitt compared one group of five 10-year-old children, under autocratic leadership, with a comparable group under democratic leadership. In a second experiment, Lippitt and White studied four comparable clubs of 10-year-old boys, each of which passed successively through three club periods in such a way that there were altogether five democratic periods, five autocratic periods, and two "*laissez-faire*" periods.

2. In the second experiment, the factor of personality differences in the boys was controlled by having each group pass through autocracy and then democracy, or vice versa. The factor of leader's personality was controlled by having each of four leaders play the role of autocrat and the role of democratic leader at least once.

3. Records on each club meeting include stenographic records of conversation, quantitative symbolic records of group structure, quantitative symbolic records of all social interactions, and a continuous interpretive running account. Parents and teachers were interviewed; each boy was given the Rorschach ink blots, a Moreno-type questionnaire, and was interviewed three times. Analysis of causal relationships between these various types of data is still far from complete. As a preliminary report we are giving here a part of the data bearing upon one specific problem, that of aggression.

4. In the first experiment, hostility was 30 times as frequent in the autocratic as in the democratic group. Aggression (including both "hostility" and "joking hostility") was 8 times as frequent. Much of this aggression was directed toward two successive scapegoats within the group; none of it was directed toward the autocrat.

5. In the second experiment, one of the five autocracies showed the same aggressive reaction as was found in the first experiment. In the other four autocracies, the boys showed an extremely nonaggressive, "apathetic" pattern of behavior.

6. Four types of evidence indicate that this lack of aggression was probably not caused by lack of frustration, but by the repressive influence of the autocrat: (a) outbursts of aggression on the days of transition to a freer atmosphere; (b) a sharp rise of aggression when the autocrat left the room; (c) other indications of generalized apathy, such as an absence of smiling and joking; and (d) the fact that 19 out of 20 boys liked their democratic leader better than their autocratic leader, and 7 out of 10 also liked their "*laissez-faire*" leader better.

7. There were two "wars," more or less playful, and without bodily damage, between clubs meeting in the same room at the same time. The first of these began gradually, the second suddenly. Three factors, present in both cases, seemed conducive to group conflict: (a) irritation and tension produced by a hostile stranger, (b) absence of a respected adult, and (c) lack of any absorbing alternative activity.

8. There were two striking instances of aggression against impersonal objects.

9. A general interpretation of the above data on aggression can be made in terms of four underlying factors: tension, restricted space of free movement, rigidity of group structure, and style of living (culture).

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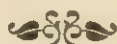
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LEOTA L. JANKE AND
ROBERT J. HAVIGHURST

Relations between Ability and Social Status in a Midwestern Community

The following article is one of a series of studies that explore the relationship between the abilities of a pupil and his social status in the community. The question has considerable import for the school, for if the achievement and ability of pupils are related, in part, to their social status, the teacher and administrator who know the status levels, represented in the classroom can make more intelligent judgments in curriculum planning, individual diagnosis, and evaluation. The existence of such a relationship would suggest, furthermore, that the consistently low achiever may be more educable than we sometimes are inclined to assume.



The present paper reports results of tests given to sixteen-year-olds in a typical Midwestern community. A previous paper¹ reported results of tests administered to all ten-year-old children in this same community. The purpose of this study was to find out how differences of ability are related to social status. A further paper will analyze the changes which appear with age in an attempt to de-

¹ "Relations between Ability and Social Status in a Midwestern Community. I. Ten-Year-Old Children." Havighurst, R. J., and Janke, L. L., *J. Ed. Psych.* 35, 357-396 (1944).

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termine the educative effect of the different social environments in which these children live.

THE COMMUNITY

Midwest, the community in which this study was made, is a typical midwestern community.

Included in the study were families living in the county seat, Midwest, and its surrounding rural trading territory. The total population of this area is ten thousand, about six thousand of whom lived in the city of Midwest at the time of the 1940 Census.

As in other communities, the citizens of Midwest are members of a social hierarchy. They place themselves on a social scale, above some people and in most instances below others in the community.

In studying the social hierarchy of this community the 'social status' method was employed. By this method the people of a community are studied with respect to their social participation—Who associates with whom? Which individuals and which groups are placed at the top, middle, and bottom of the social scale by the people in the community?

Following the procedure of the social status method, Professor Lloyd Warner and his students placed the families of the boys and girls included in this study on a scale of social classes.²

TESTING PROCEDURES

As was the case in the study of the ten-year-old children, all of the sixteen-year-olds were tested individually by one of us (LLJ).

In the present study, the group to be tested consisted of all the boys and girls in Midwest and its surrounding rural territory who were born in the calendar year 1926. Birthdates were secured from school records and checked against birth certificates. Records of birth certificates and elementary-school records were also used in locating sixteen-year-olds who were out of school.

²Characteristics of each of the five distinct social classes found in Midwest by these investigators are described in detail in the first paper, where a more complete account of the community will also be found.

In this age group there were a total of one hundred forty-seven individuals. A total of one hundred twenty persons were tested. Five of these are not included in the tables because there was insufficient knowledge of their families to permit placing them in a status group. Eighteen who were out of school came in to be tested, and were paid fifty cents an hour for taking the tests. Of the twenty-seven who were not tested, all but one were out of school. The field-worker called on all the twenty-seven who were not tested, and in some cases made several calls. She made definite appointments with ten persons who did not meet the appointments.

This experience indicates that it is extremely difficult to test everybody in a given age group after the age of fourteen, when children begin to drop out of school. However, it was possible to make a judgment as to the effect of the omissions on the average scores, because there were Otis Intelligence Test scores in the school records of seventeen of the twenty-seven persons who were not tested. This matter will be discussed later.

TESTS USED

A brief description of each test used follows:

1) The Revised Stanford-Binet, Form L, was used as a verbal test of intelligence.

2) The Performance Scale of the Wechsler-Bellevue Adult and Adolescent Scales was used as a performance test of intelligence.

3) The Iowa Silent Reading Test, New Edition, Advanced Form AM was chosen to test reading ability. The Elementary Form of this test was administered to ten individuals who were out of school and who had not completed more than eight school grades.

4) The Minnesota Paper Form Board, Revised, Form AA. This test was chosen as a means of measuring ability to perceive spatial relations. High scores in this test are said by its authors to be predictive of success in engineering and mechanical occupations.

5a) The Minnesota Mechanical Assembly Test (Modified). This test was found by its originators to give a very good prediction of mechanical ability. For this study we used our own modification of the test, which consisted of the long form of the Minnesota test

from which items which have become obsolete, and items which seemed to depend to a considerable extent on strength of fingers or wrists, were omitted. The following items were retained:

Box A.—Expansion nut, hose pinch clamp, linked chain, bottle stopper, push button doorbell, bicycle bell, Corbin rim-lock.

Box B.—Safety razor, monkey wrench, ringstand clamp, test-tube holder, spark plug, electric plug and wire, handle for iron.

Box C.—Die holder, pliers, electric-light socket, wing nut, glass drawer knob, rope coupler, kettle cover knob, lock nut, petcock, hose clamp, pencil sharpener, air gauge valve.

5b) The Chicago Assembly Test for Girls. The only test of mechanical ability for girls, the IER Assembly Test,³ appeared to be inadequate for our purposes. Consequently, we devised a test designed to measure the skill of a girl in working with her hands. This test consists of twenty short tasks.⁴ (1) Stringing beads, (2) Assembling a cabinet door knob, (3) Assembling a simple pencil sharpener, (4) Assembling a kettle cover knob, (5) Attaching electric wire to plug, (6) Identifying sewing tools, (7) Identifying textile materials, (8) Stick printing, (9) Clay modeling, (10) Weaving, (11) Cutting along a line with scissors, (12) Cross stitch, (13) Outline stitch, (14) Pinking, (15) Basting, (16) Hemming, (17) Bias binding, (18) Embroidering a design on toweling, (19) Drawing a flower, (20) Tracing a design.

6) The Porteus Maze Test was administered, but results failed to indicate sufficient differentiation between sixteen-year-old subjects to be included in the study.

RESULTS

The results of this testing program are summarized in Table I. This table shows the means, the standard deviations, and ranges of test scores for the total group, for boys and girls, urban and rural,

³ Toops, H. A. *Tests for Vocational Guidance of Children Thirteen to Sixteen*. Contributions to Education, Teachers College, Columbia University, No. 136, 1923.

⁴ Items from the Minnesota Mechanical Assembly Test (Nos. 2, 3, 4, 5) were timed. The remainder of the test was given without time limits. Average duration of the test was eighty minutes.

TABLE I
TEST RESULTS FOR THE SIXTEEN-YEAR-OLD GROUP

| STANFORD-BINET | | | | WECHSLER-BELLEVUE | | | | IOWA SILENT READING | | | | |
|-------------------------------------|------|------|--------|-------------------|-------|------|-----------|---------------------|-------|-------|-----------|-----------|
| Mean | | | | Mean | | | | Mean | | | | |
| | SD | N | Range | IQ | SD | N | Range | T- score | SD | N | Range | |
| Total Group | 108 | 110 | 62-143 | 106 | 11.8 | 114 | 60-128 | 50.0 | 10.00 | 112 | 25.6-72.4 | |
| Boys | 110 | 47 | 69-141 | 105 | 11.2 | 47 | 81-125 | 49.3 | 10.50 | 44 | 27.9-72.4 | |
| Girls | 107 | 63 | 62-143 | 107 | 14.8 | 67 | 60-128 | 50.4 | 7.92 | 68 | 25.6-70.1 | |
| Urban | 109 | 81 | 68-143 | 107 | 11.6 | 84 | 69-128 | 50.4 | 11.99 | 84 | 27.9-72.4 | |
| Rural | 105 | 29 | 62-128 | 103 | 15.2 | 30 | 60-126 | 48.6 | 10.51 | 28 | 25.6-70.1 | |
| Status Groups | | | | | | | | | | | | |
| AB | 128 | 11.2 | 9 | 110-143 | 118 | 8.8 | 9 | 102-126 | 58.0 | 6.05 | 8 | 54.4-66.9 |
| C | 112 | 11.6 | 42 | 77-137 | 109 | 10.4 | 44 | 81-126 | 51.0 | 8.08 | 43 | 32.6-72.4 |
| D | 104 | 15.7 | 48 | 68-137 | 102 | 12.4 | 48 | 66-128 | 48.9 | 9.84 | 48 | 25.6-70.1 |
| E | 98 | 17.2 | 11 | 62-122 | 103 | 17.2 | 13 | 60-122 | 45.6 | 13.94 | 13 | 25.6-64.6 |
| MINNESOTA PAPER FORM BOARD | | | | | | | | | | | | |
| Mean | | | | Mean | | | | Mean | | | | |
| Raw Score | SD | N | Range | T- score | SD | N | Range | T- score | SD | N | Range | |
| 35 | 13.6 | 115 | -4-60 | 50.0 | 10.00 | 46 | 19.0-67.9 | 50.0 | 10.00 | 66 | 26.8-67.8 | |
| 35 | 12.4 | 47 | 3-54 | | | | | | | | | |
| 36 | 14.4 | 68 | -4-60 | 49.9 | 10.68 | 33 | 19.0-67.9 | 50.7 | 9.67 | 49 | 29.7-67.8 | |
| 36 | 13.6 | 85 | -4-60 | 50.1 | 9.28 | 13 | 35.8-64.4 | 47.9 | 10.39 | 17 | 26.8-65.8 | |
| 33 | 13.4 | 30 | -2-50 | | | | | | | | | |
| MINNESOTA ASSEMBLY CHICAGO ASSEMBLY | | | | | | | | | | | | |
| Mean | | | | Mean | | | | Mean | | | | |
| Raw Score | SD | N | Range | T- score | SD | N | Range | T- score | SD | N | Range | |
| 44 | 7.4 | 9 | 27-52 | 46.8 | 17.32 | 6 | 19.0-61.6 | 62.1 | 3.15 | 3 | 60.1-65.8 | |
| 40 | 10.2 | 44 | 14-60 | 51.6 | 8.86 | 17 | 35.8-67.9 | 52.0 | 7.92 | 25 | 39.0-67.1 | |
| 31 | 14.6 | 49 | -4-56 | 48.8 | 10.05 | 19 | 21.1-65.1 | 48.5 | 10.25 | 29 | 47.8-67.8 | |
| 31 | 15.4 | 13 | -2-48 | 53.0 | 10.93 | 4 | 47.7-59.6 | 45.3 | 9.26 | 5 | 26.8-56.2 | |

and for social status groups AB, C, D, and E. Because of the small number, individuals in social class groups A and B were placed in one group for purposes of comparison with the other social class groups.

Results on the Stanford-Binet and Wechsler-Bellevue are given in IQ's. The Minnesota Paper Form Board results are given in raw scores. Scores on the Iowa Silent Reading and the two Assembly Tests have been converted into T-scores.

T-scores have been used for the Assembly Tests since there are no norms for these tests as we used them.

T-scores were obtained from Median Standard Scores on the Iowa Silent Reading Test.

Ten of the individuals who were out of school when tested had not completed eighth-grade work. The Elementary Form AM (Grades IV-IX) of the Iowa Silent Reading Test was administered to these individuals. Since tables of grade equivalents and median standard scores were available for both the Advanced and the Elementary Forms of the test, it was possible to place these individuals in rank order at the lower end of the distribution and to assign them scores on the Advanced Form by extrapolation.

TABLE II
COEFFICIENTS OF CORRELATION BETWEEN TESTS

| | <i>Binet</i> | <i>Wechsler</i> | <i>Iowa</i> | <i>Form Board</i> |
|--------------------|--------------|-----------------|-------------|-----------------------|
| Wechsler-Bellevue | .66 ± .03 | | | |
| Iowa Silent | .78 ± .02 | .53 ± .04 | | |
| Paper Form Board | .51 ± .04 | .73 ± .02 | .40 ± .05 | |
| Minnesota Assembly | .13 ± .09 | .35 ± .08 | -.01 ± .1 | .28 ± .09 |
| Chicago Assembly | .75 ± .04 | .69 ± .04 | .51 ± .06 | .53 ± .06 |

Table II gives the coefficients of correlation between tests. Correlations between intelligence tests and between intelligence tests and the Iowa Silent arc light. A very low positive correlation was found between the Binet and the Minnesota Mechanical Assembly Test. A slightly higher correlation is found between the Performance Test and the Mechanical Assembly Test.

Table III * gives the critical ratios of the differences between groups. All ratios were calculated, but only those which were greater

* [Table omitted.]

than 1 have been included in the table. Significant differences between the upper groups (AB and C) and the lower groups (D and E), are found for all tests except the Iowa Silent and the Minnesota Assembly. No significant differences were found between sexes, or between urban and rural groups.

Before discussing the results as given in Table I it is necessary to consider the question whether the means for the various groups have been seriously affected by the absence of test data on twenty-seven individuals. Conceivably, these persons, all but one of whom had dropped out of school, might have been very low in the abilities tested, thus making the group means higher than they would have been if everybody had been included. Fortunately, there were IQ's from the Otis Intelligence Test in the school records of seventeen of these boys and girls, thus making it possible to compare them in intellectual ability with those who were tested in this study.

The status distribution of those who were not tested was as follows: one in social class B, two in class C, seventeen in class D, six in class E, and one whose status was not known. Those in classes B and C can safely be ignored. They were individuals of average abilities as evidenced by their school records. Their omission from Table I cannot appreciably affect the means for status groups B and C on intelligence tests. This leaves the effect of omissions on the means of groups D and E to be considered further.

The Otis Intelligence Test (1919) had been administered each year to the seventh grade of the public school and to new students in Midwest high school. Individual scores were recorded as IQ's which had been computed in accordance with the 'deviation method' described in the *Manual of Directions* for the Otis Classification Test (1919). Table IV gives the Otis IQ's for those of groups D and E who were tested and for those who were not tested in this study.

Inspection of Table IV * indicates that those of class D who were not tested averaged four points lower on the Otis Test than those who were tested, while those of class E who were not tested averaged nearly the same as those who were tested. The conclusion seems justified that on measures of intellectual ability the members of the E group who were included in our study are representative of the total E group, while the members of the D group

* [Table omitted.]

who were included in the study may average slightly higher (probably not more than two IQ points) than the total D group. This conclusion is based on the assumption that the six D persons and **three** E persons for whom there were no data at all, not even an Otis IQ, would not have changed the group means appreciably. These nine boys and girls had never entered high school. They had attended a parochial school or a rural school and had dropped out at the time of graduation from the eighth grade. It seems probable that they would have been inferior in ability to those who stayed in school, and thus their inclusion in the study might have lowered the group means for classes D and E slightly in the tests of intellectual ability.

In summary, the means for groups AB and C have not been affected by the incompleteness of the testing; the means reported for groups D and E on tests of intellectual ability may be slightly higher than they would be if all the members of these groups had been tested, but the relative positions of the two groups is certainly correctly presented.

DISCUSSION OF RESULTS

The principal conclusion of this study is that intellectual ability is closely correlated with social status among sixteen-year-olds, but mechanical ability is not correlated with social status among boys at this age. The differences between the two upper groups (AB and C) and the two lower groups (D and E) are especially large and consistent on all tests of intellectual ability and achievement, but these differences disappear on the Mechanical Assembly Test for boys.

When compared with the data from the tests administered to ten-year-old children in Midwest certain interesting differences become apparent. At the ten-year-old level the children in the higher social groups were superior on all tests to the children of lower status groups. At the sixteen-year-old level, however, the boys of higher social groups had lost their superiority on the Mechanical Assembly Test.

A comparison of correlation coefficients between pairs of tests at the sixteen-year level with analogous coefficients at the ten-year-level gives further support to the inference that the intellectual

and the mechanical abilities, which are positively related in younger children, lose much of this relation by the time of later adolescence. The correlation coefficient of Binet IQ and Mechanical Assembly Test score is .66 for ten-year-old boys, and .13 for sixteen-year-old boys. On the other hand, and as would be expected, the correlation coefficient of Binet IQ with Iowa Silent Reading Test scores increases between the ages of ten and sixteen. Further, in line with the general trend, the correlation coefficient of Binet IQ with Performance Test IQ decreases with increase in age.

The general conclusion is that continued exposure to the differential environments of different social class groups selects out and favors certain abilities, and at the same time discourages or neglects other abilities. Consequently, abilities are more highly differentiated in sixteen-year-olds than in ten-year-olds.

Probably the amount of experience of upper and middle-class boys increases relative to that of lower-class boys with books and other verbal materials as they grow older. On the other hand, the lower-class boys probably spend relatively more times at work or at play with tools and other mechanical devices. Still, this hypothesis needs explicit verification, for it is well known that many middle- and upper-class boys take an active interest in machines and in mechanical hobbies such as photography and model airplane making, and these boys often have access to very well-equipped workshops.

A more careful analysis of the changes with age in test performance will be made in a later paper.

Other conclusions are: The urban group is slightly but consistently superior to the rural group; and there are no reliable sex differences. Furthermore, as was the case with the ten-year-old group, the Chicago Assembly Test for girls does not test an ability which is clearly separable from the intellectual abilities tested by the intelligence tests. Finally, the average IQ's for the sixteen-year-olds of Midwest are somewhat higher than the national average, as was found to be the case for the ten-year-olds in Midwest.

SUMMARY AND CONCLUSIONS

The following tests were given to all available sixteen-year-old boys and girls residing in a typical middle-western community,

both urban and rural; Stanford-Binet, Wechsler-Bellevue (Performance Scale), Iowa Silent Reading, Minnesota Paper Form Board, Minnesota Mechanical Assembly (Modified), Chicago Assembly Test for Girls. The test results were compared for social class groups, urban-rural, and sex groups. Product-moment correlations were calculated for the various pairs of tests.

The results of this study may be summarized as follows:

1) The mean Binet IQ was about 108, which is higher than the national average.

2) Boys and girls from families of higher social status tended to do better in all the tests than boys and girls of lower social position, with the exception of the Mechanical Assembly Test, where there was no reliable social class difference among the boys.

3) Urban boys and girls tended to do better than rural boys and girls, but not significantly so.

4) No significant sex differences were obtained.

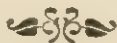
5) The results tend to support the view that greater specialization of abilities occurs in adolescents than in younger children, and that such differentiation may be due, in part, to differences in the cultures of the different social class groups which make up the typical American community.

LLOYD ALLEN COOK

An Experimental Sociographic Study of a Stratified Tenth-grade Class

It is educationally valuable to think of the classroom group *as* a group. What is often obscured, however, is that the children in this group are drawn broadly from the surrounding community and represent *all* the social-class levels existing in that community. Consequently, in any classroom there are identifiable *subgroups*.

Are the friendship patterns found in a classroom related to the social-class levels represented there? Or do children in a classroom group make their friendships without regard to differences in social level? Professor Lloyd Allen Cook's data suggest an answer for one level of education. He also presents a report of his attempt to change the pattern of social interaction in a classroom group through the use of both individual-guidance and group-management approaches.



A year ago, we described a projected study of a 10th grade high school class, indicating some initial findings.¹ In June, 1944, this work was concluded and the present paper is an overall report. Though similar studies are now in process, we shall confine discussion to the Crestview project. The viewpoint is that of an educational sociologist, interested in understanding child groups and peer cultures, and the work was done under a number of very practical limitations.

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I

At a state educational conference in September, 1942, the writer spoke on the use of sociographic methods. Among the school people expressing interest were two former graduate students, one a social studies teacher, the other the personnel officer, at the Crestview High School. As the study project shaped up, these persons, along with the principal and the writer, became the planning group, making decisions over the two year period.²

The group selected was a 10th grade social studies class. It enrolled at the outset 44 pupils, all but seven of the eligible 15 year olds in the school. The course was a flexible "core type" course, with students accustomed to planning units of study, making class trips and the like. No changes were made except that the teacher was to go with the class into its 11th year.

Objectives for the first year of study were three. We wanted to determine, by sociometric test, the friendship structure of the group, comparing first and second semester sociograms for changes and stabilities. We wanted also to stratify these 44 adolescents by use of the Warner technic of social class analysis, and thirdly, to see what light these status data would throw on "best friend" choices. With these base lines known, the second year experimental program could be started. Its general aim was "to improve the learning situation by democratizing pupil attitudes and behaviors." For the first semesters, the approach was to be via individual guidance, for the second group management, with effects in either case to be noted in group and individual sociograms.

As a community, Crestview cannot be exactly typed. Though a kind of residential suburb, it has a thriving socioeconomic life of its own. It is a small midwestern town of about 4,500, not far from a large city. Three fourths of its people are native white of native parentage, with the remainder about equally foreign born and Negro. Since mid-1942, over a third of its wage workers have been employed in city war plants. Close to a hundred family heads own their own business or are in professions. Over half of these are active members of the "old crowd," in distinction to the "new crowd," two thirds of whom have lived in Crestview for five years or more. At least three fifths of all families are said to "own" their own homes, with property values ranging from \$3,500 to over

\$25,000. Wealth is concentrated in the "old crowd," with five or six kin groups reported as "running the town." A sense of "old family," while much less evident than in New England or the South, is distinctly present. There are some but not many exclusive cliques and clubs.

As participants in civic affairs, through home visits and other contacts as supplemented by small but pointed school-made surveys, we had hoped to stratify large segments of the adult population, even to construct skeletal sociograms.³ Both of these tasks proved too much for us, though some work was done. Without concretizing, we were satisfied after three months of observation as to the very probable existence of a three level class system. We judged that three fifths of all families were middle class, about 70 families were identified as upper or near upper class, with the remainder low class. Rough though these estimates were, we believed them to be satisfactory for our purpose.

II

Since we would need a number of sociograms of the same high school group, it seemed best to make an indirect approach. We drew up a one page blank on "extracurricular activities," giving it with minor changes each semester to various classroom groups. Students were told that their reactions, for example fewer assemblies, more dances, would be passed on to the student council, a promise on which we always made good. Midway on the blank were the two sociometric questions. One asked for the names of best friends in school, "one, two, three or more as you like," and the other for the names of boys and girls "about your own age, whom you don't like so well, don't care to associate with." We thought these questions would be overshadowed by extracurricular concerns which, on repeated check, proved to be the case.

The task of stratifying these youngsters was not solved to our satisfaction. We had Warner's book,⁴ in addition to the writer's contacts with this group. We used in all three kinds of data, the first relating to *pupil home backgrounds*. Starting with 30 odd items, we tested and came to use ten: location of home, number of rooms, length of residence, number of servants, parental educational status, father's occupation, approximate annual income,

mother's sociocivic clubs, family magazine subscriptions, and family's social prominence. On the latter item, each home was rated by five or more adults who knew the family well, usually of the same social class level.

Our second set of data defined the *pupil's reputation among his peers*. By use of a two-page form, followed as needed in the school's continuous "guidance checkups," we secured reactions to an array of "guess who," "show me" and social distance items. For instance, "who always thinks about keeping very clean, well dressed and tidy," or the reverse. Or on the "show me" test, after describing an out-of-class incident calling for pupil leadership, we asked for leader names. Our general hypothesis was that each adult social class instills into children its own norms and values, its ways of living. The intent was not to measure these subcultures but to sample child expressions of them, to get pupil ratings on such items as dress, grooming, language usages, moral ideals, and boy-girl conduct. Thus a child named as dirty, or "smart aleck," or "real leader," might or might not be so, yet he must make his adjustment to the group in terms of his reputation.

Since these tests sought only reputational ratings, they would not appear to need validation in the sense of comparison with external criteria. On internal consistency as judged by several of our colleagues and on inter-test comparisons, they came well up to expectations. Their reliability, as inferred from similar studies, was rather high. For instance, Tryon⁵ reports test-retest correlations on the "guess who" for 7th grade boys and girls as .76 and .80. Newstetter,⁶ studying summer camp groups in successive weeks by the Moreno test, found an average .95. Zeleny,⁷ using the same test with college students, .93 and .95; and Jennings,⁸ in a retest of a cottage unit of girls, .96 for positive choices and .93 for negative.

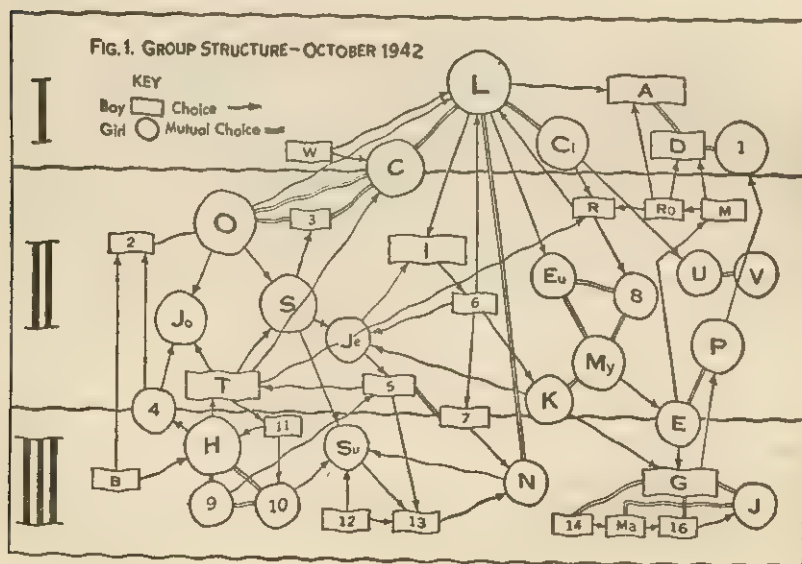
Our third type of data, in some ways the most revealing, came from observations as to *who ran with whom* as an equal and an intimate. We simply kept a record of these associations at school, in school affairs, student hangouts, etc., placing each 10th grader in reference to associates of a known high, middle or low prestige rank. Marginal cases were left as marginal, a practice followed throughout the study.

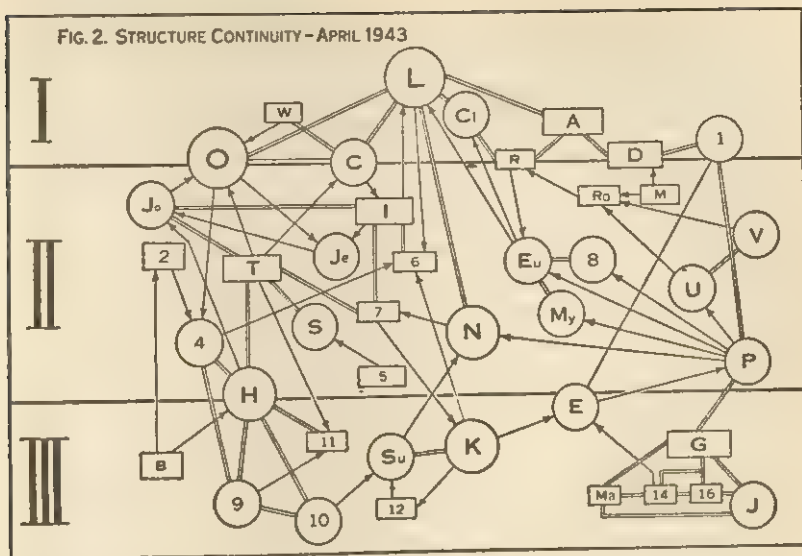
In using these several kinds of data to bracket children in class levels, we did not proceed in any mechanical fashion. In every

case, we used our combined best judgment in assigning a prestige rating, thus introducing a subjective element but one that was known, hence under some control.

III

The two groups sociograms, Figures 1 and 2, were the major products of our initial year of work. They hold two points of general interest. The first point, as seen in Figure 1, is the basic structure of this 'teen age group. Here are the usual sociographic patterns—the *isolate*, W, Will, B, Bob, etc. not chosen as a friend by any classmate; the *pair*, U-V, Una and Violet, a mutual choice; the *chain*, R-Ro-M, Ralph *et al.*, a series of one way choices; and the "cluster" with its "star." This "cluster" we shall call a *clique* and there are two types. The H or H-T grouping, Howie and Tom, is an open clique, with leader role constant but members shifting and authority shared, whereas the G, George, clique is closed. Leadership is centered and autocratic and members are unchanging. There is also in the sociogram the *all-group leader*, notably L, Lois, although no *factions* as Whyte⁹ described them in street corner gangs are evident.





The above interpersonal and subgroupal network is, in general, about what we are coming to expect in 'teen age classrooms in primary communities. Almost three fourths of all positive choices, in sum 96, fell within the 10th grade, and all within the school. A majority were within own sex, own status level, with *out choices* being most common in boy-girl attractions, *up choices* most frequent in claims on high ranking "stars" by middle class children. Negative choices, while not depicted in any of our published sociograms, were more or less the reverse of these trends.

Questionnaire data show that upper class children received far more than their fair share of choices on every positive reputational item, for example best dressed, best liked, most fun, and real leader. At the opposite extreme, low class children were seldom mentioned except by other low class children. In negative ratings, these latter pupils were named with great frequency by upper and middle levels as "not liked," "dirty, smelly," "fights a lot" and "dumb." Middle class children cast as a rule more positive votes for top level friends than for their own rank order, viewing both levels as "sharp," "rugged" or "solid," in contrast to bottom level "drips" and "jerks." The phrase most often used by the latter in referring to most upper level children was "the sissies," the "sissy crowd."

The second point of interest in the sociograms is the relative stability of the classroom structure over six months of time. This is seen by comparing Figures 1 and 2. For example, Lois is still the pert little queen, though Olive is in better position to contest her leadership. Bob, a crippled boy, names the same two friends but is still unnamed by anyone. The George clique, while a bit more unified, is much the same. All in all, *stabilities in contrast to changes are about five times as numerous*. R, Ralph, has moved to, or into, top status ranking, the children whom three out of each five middle class mothers want their own youngsters to have as friends. T, Tom, star athlete and social extrovert, is a fine example of middle class talent mobility. E, Eloise, a quasi-member of the rowdy George clique, has lost status, due chiefly to a newly acquired reputation as a "bad girl."

Enough has been said, perhaps, about these sociograms to show that we are dealing with a structured universe, a network of "attractions and repulsions" that underlies the official organization of the class. Each child must live in these twin worlds, informal and formal, where behavioral norms are not readily, if at all, transferable. Each has a position to maintain, a role to play, a status to advance, although the question of how this is done is beyond the scope of the paper. In general, the classroom system is a three way product—a creation of the children, an imposition of adult status values, a result of teacher middle-class standards, rewards and punishments. It seeks of course, like every social system, to preserve itself, or concretely to assimilate teacher rule, deflect or defeat it. Though frozen for the moment, it is anything but static. It is an ever shifting equilibrium, a struggle process, a competitive effort to better one's self in peer ratings.

IV

It was from thinking of this sort that we set up the second year work. The aim, as was said, was to create a better learning situation, a more democratic atmosphere, by use first of *individual guidance*. Our discussions of democracy, good teaching and the like, can be omitted. By guidance, we came to mean "adjusting the individual to the group," a phrase whose operational content can be sensed by noting its application to cases. It was agreed that we

must work, not only on individuals, but through individuals, else guidance could not be distinguished from group management, for the latter also envisioned personality changes. Thus the variables under test were technics, not assumptions, purposes, etc., the one set psychological, the other sociological, keeping the two as separate as possible.

Assuming that no teacher could do much with forty odd students, we began to spot experimental cases. B, Bob, and J, Julie, were to be "integrated into the group." The George clique was to be "broken up." N, Nancy, P, Pat, and J, Jan, were fairly obvious "sex problems." U-V, Una and Violet, a tightly woven "crush relation," were in need of a wider circle of friends. L, Lois, we felt should be "dethroned" and taught a more honest and pervasive concern for her classmates. O, Olive, was to be guided toward increasing responsibility as a group leader. It was here, about half way through our cases, that unanimity ended. This is, no doubt, a way of saying that our problems changed in character. They were no longer commonsense and behavioral but deeply internal and attitudinal. For example, T, Tom, and K, Katie, were both well-liked middle class children extremely sociable and upwardly mobile. And yet, as we cannot show here, each was a prime personality problem. Tom revealed a "rigid or conscientious" character structure, Katie a "temperamental or scattered" structure,¹⁰ and both were in need of help.

In all, 15 subjects were selected, marked in Figure 3 with a bar. Six were boys, 9 were girls; 3 upper class, 7 middle and 5 lower. Age range was from 15 to 17 years; IQ, 90 to 115, with two cases above normal grade placement and two below. Three were social isolates, one an aggressive clique leader, three were sex problems, one a domineering class leader, three talented potential leaders, two in an unhealthy pair relation, and the remainder subjective personality problems. We did not regard these adolescents then, nor do we now, as anything other than a mine-run sample of almost any high school class.

Our aim was not to force changes on any child. We did not, however, try to set up an honestly "permissive environment,"¹¹ if such is ever possible, or to engage in "nondirective therapy." Our task was to guide these children—to give direction, meaning and support to the changes *they* *willed* to make. Our technic was almost

wholly the private conference, a guided interchange of ideas; adaptive, emotionalized and suggestive but not, we believe, too insistently so. From five to ten sessions were held with each child, each lasting from 15 to 30 minutes or over. No child was told that he had been singled out for study, and we had a perfect cover in the recurring "guidance checkups" for all students.

It was with George, the clique leader, that we scored our great failure, and a fragment of an interview will suggest our general procedure. Rough and tough and happy in his role, George remained negative to the last, until in fact the Army took him over.

GUIDANCE CONFERENCE: A SEGMENT

- G. Here comes George, bad old George. I'll flop here. (Pulls a chair to the window, sits with his back to the teacher.)
- T. Hello, George, You know I like to talk with you. Do you like to come here?
- G. Ok, Ok, I guess. No need to. Not a need. . . .
- T. Well, I've been thinking about this. What are you going to do when you finish school?
- G. (No reply. Picks up a magazine and thumbs pages.)
- T. Tom says he's going to war. He is going to be . . .
- G. (Interrupting.) I don't care what . . . I got my eye on something. A bomber pilot. . . .
- T. Then you'd have a crew, wouldn't you? I read a story about that. The pilot and crew were a team.
- G. (Finds picture of Fortress. Studies it.)
- T. It was in England. . . . The crew liked that pilot. He got along with everybody. . . . They would do anything for him. Once, over Bremen . . . That took courage, didn't it, courage and teamwork?
- G. Yeh. He had what it takes. He ran his gang. He told 'em what. Nobody argued back.
- T. There was a big dance one night at the base. Lots of girls were there. . . . Everybody liked the pilot. He was friendly and got along with everybody.
- G. I can take care of myself. I run my gang. Let the rest of them (the class) go hang.
- T. I didn't tell you all about that pilot. He had a problem, a tough one. . . . He wasn't afraid to talk things over. It takes courage to do that.
- G. Who's afraid? I ain't afraid. I'm stubborn, that's what. I'm stubborn.

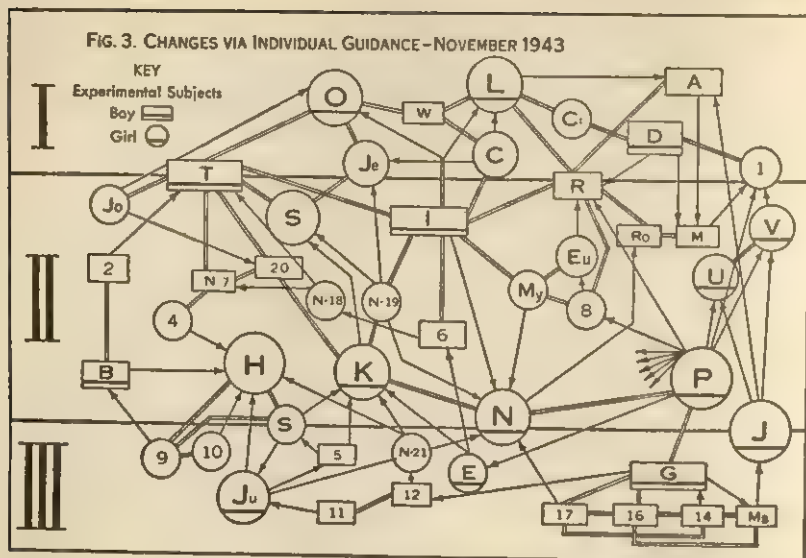
- T. That pilot was stubborn when the flak hit. Remember? That wasn't bad, was it?
- G. Naw, hold on. Hold on and fight, fight, fight.
- T. Should one change his course sometimes, like the pilot did? You know, be a little different, a better leader?
- G. The sissies (referring to his own classmates).
- T. Tom likes you. Others like you. I would make a bet that . . .
- G. (Rises; kicks at chair. With an "I'll be seein' ya," he starts toward the door.)

This is a segment of the sixth interview, each a little more direct. It can be argued that we did not know how to deal with George, which is quite correct. In all fairness, George was no easy boy to affect. Out of one scrape into another, his clique broke into an unoccupied house just after this conference. They drew crude sex symbols on the walls, carried away removable fixtures, and built a fire on an upstairs hardwood floor. They made a pallet out of old blankets and, with Jan, engaged in sex intimacies. A name on a piece of paper gave the thing away. George's father, as did other dads, professed complete surprise. His most revealing remark was: "I didn't know the kid was doin' nothin'. I'm gonna lick h-l outa him twice a week, reg'lar."

We failed with George but how and why are still conjectural. In our opinion, we worked on a false premise. The boy was a star in every sport, a school hero of first rank importance. Having great prestige in the school at large, he could be indifferent to, or aggressive toward, classmates and teacher. Neither class nor teacher had anything to offer him that he wanted, no way to motivate status strivings, to shake his supreme self confidence, hence the learning (or integrative) process could not get started. Our mistake was not to recognize his solid anchorage in the school and to work from this angle.

v

What can be said, in general, about our success or failure in using individual guidance? It will be evident, in comparing Figures 3 and 2,¹² that Lois is less popular, less in position to swing the class as she likes. Olive has advanced in best friend choices into a place of all-class leadership, an effect we worked for. Bob, the



isolate, has made one mutual friend and been named by one classmate. Julie and Dan, also isolates, have done less well, yet some outreaching is apparent. Tom and Ikie have won acceptance from higher ranking peers, with the Jewish boy the major link between the nascent Olive and Lois factions. Lois has dropped Nancy, a newcomer to the community and a distant relative, to check her own imminent downward movement, and Nancy has begun to make middle class friends. Elizabeth has broken with the George clique and Katie also seems to be leaving bottom level associates.

Of equal interest are the changes we did not make, the attractions and repulsions too strong for us. The George clique is better integrated than before, with one new member. While Jan is on the way out, Pat or Nancy is likely to take her place. Pat, in particular, is in an insecure position. Her individual sociogram, for instance, shows that she names 13 classmates as best friends and rejects 5, whereas no one, except George and Nancy, names or rejects her. Such a gap between self conceptions and group acceptance, is not uncommon,¹³ but in this case it is, at least in part, an effect of guidance, an overstress on friend making. Una and Violet remain inseparable, with only the latter showing any effect of our efforts.

Changes of another type should be mentioned, alterations not

intended and over which we had no control. For example, Josephine, a confidant of Olive, has moved inside a four-way upper status grouping, a cluster of leaders united against, more or less, the Lois faction. In this faction, Ralph has assumed a key position, a mediator role between lesser units on both sides, a part as our case materials show that he plays to perfection. Arthur, the young *H. M. Pulham, Esq.* of Crestview's youthful elite society, cannot quite make up his mind to become a real fellow, to make and keep friends below his station in life. The fact that he is named by Jan, the Kitty Foyle of the group, is more than we can explain.

VI

We shall turn now to what is, perhaps, the most interesting part of the experiment, the *group management approach*. While an eye was kept on changes in process, our target was in truth the whole group. The aim was to teach what someone called "the spirit of willing cooperation," an ideal running counter to dominant core values in our culture, hence not easy of achievement.¹⁴

Assuming that these attitudes and skills could not be taught, or well taught, by teacher talk, or by sitting and listening, we planned to start "activity projects" in which all pupils would want to participate. A large measure of power, the power of decision, was to be lodged within the group, and the group guided in using this power in the interest of all class members. We believed, with Slavson,¹⁵ that a child group could learn how to control its members, yet we could not go all the way with him in creating a "permissive environment." Our concept of teacher role was patterned closely on Lippitt's "democratic group leader,"¹⁶ though it varied somewhat with the situation. End results were to be pictured in sociograms and, as usual, explanatory data collected via questionnaire, case studies and group observation.

During this last semester, we made use of three types of projects. The first consisted of *fun parties*, of which there were seven, such as after-game hayrides and stunt nights. Each was organized by the class with only incidental help from the teacher. The second type of project comprised war service activities, of which there were three, and the third two rather stumbling attempts at "role practice."¹⁷

War service projects can be illustrated by a two weeks "scrap hunt." The teacher had "wondered" at two class meetings if the group "could help more" in current war activities. The idea of collecting scrap—paper, tinfoil, razor blades, rubber, etc., arose at the next class meeting. It was proposed by Howie and supported at once by Olive and Tom. Seeing that it stood to win a following, the writer began to make rough notes. While a flow chart of this sort fills several pages, excerpts from it will help to define the group process.

A SCRAP DRIVE: SEGMENTS OF GROUP PROCESS

Defining the Situation (2nd session)

Lois: Each one bring stuff. (Superior air; unenthused.)

Howie: No, not that way. Bring lots and lots of stuff to help win the war. Everybody.

Lois: You can, all you want. Bring what you want.

Teacher: Is the idea to make a real drive, an all-out drive?

Class: Yes, yes. (Nods; no opposition.)

Olive: Oh, I would like that. It would be fun. Can we?

Howie: Sure, like I said. Let's get going.

Tom: What we need is organization, like on a team.

Pat: Go every place and ask everybody in town. . . .

Tom: But first we need organization. Got to have that. . . .

Lois: Who will be president to run it?

Nancy: Ask Miss E—— (teacher). Who, Miss E——?

Teacher: Well, in our country we vote our choices. We elect our leaders.

Sue: Yes, we elect. I nominate Tom.

Ralph: I nominate Lois.

Tom: I nominate Olive.

(Others named. First ballot: Tom 12; Lois 14; Olive 10. Second ballot: Tom 22; Lois 14.)

Organizing the Group (3rd session)

Tom: Let's get going. I guess we need some committees.

(Goes to blackboard.) What gangs do we want?

Dan: Committee on junk.

Tom: Let's break that up. One on waste paper, that's one. (Four areas are defined. Lois, then Olive, chooses a committee and these fill up.)

Tom: Wait a minute. There's two other committees. . . .

Pat: I could take the one on tinfoil and stuff.

Tom: You be on it. Let each team elect its captain.

Teacher: Will we need a group on transportation and one on publicity?

Tom: Sure. Katie you be on publicity? Who'll see about trucking the stuff? You, George?

George: Thanks, pal. That's work.

Ikie: Dad's got two trucks. Guess he'd loan 'em to us.

Tom: OK. (Writes Ikie's name down.) Now what else?

Maintaining Morale (6th session)

Tom: Now we'll have committee reports. Ikie.

Ikie: All set for Saturday. Got two trucks and need four more loaders.

Tom: Who can go along? (Two volunteers.) Dan? Howie?

Dan: No can do. Sorry.

Tom: Well, we can't flop now. Got the stuff and we gotta get it in. Dad said it's the best thing the school has ever done for the town. . . .

Howie: I'll go if you'll go, Tom.

Teacher: Tom works Saturdays (at a store.) Is there anybody who will go with Howie?

Sue: Will said he'd go.

Will: Sure. You come on too, Sue?

Sue: I'll go.

Tom: Good work, gang, good work. Now for another committee.

Julie: People don't know about fats. . . . Mom didn't.

Pat: Our committee seen everybody, most everybody. (Committee on fats.)

Julie: Not Mom, I know.

Teacher: Do you have a list of places where you've been?

Pat: No, we didn't make any. We tried to do a good job.

Tom: Ok, Pat, you've done ok. Let's check where your gang has been. . . .

Evaluating results (9th session)

Tom: Quiet down, quiet down. This is our last meeting unless you want to go on. Lots of scrap to get in.

Sue: I'm for going on. . . .

Lois: Let's do something exciting. Have some fun.

Nancy: Ask teacher what. What, Miss E——?

Teacher: I've been amazed at the work you've all done.

Tom: Work and sweat, like the guy said.

Teacher: Has it all been worth doing? I wonder if it has.

Katie: Look at the stuff we've got. (At Tom's prompting, reads amounts collected.)

Olive: Fine, Katie, fine. It looks good to me.

Nancy: I like this better'n studying. You learn more.

Teacher: More of what, would you say?

Bob: Getting stuff in. Doing your part. Being ok.

Tom: Like a team, I'd say. We put it over. The town can count on us.

Teacher: Yes, it was a big job and all of you put it over. Every teammate did his part.

George: Old razzle dazzle. I don't go for that.

Dan: Dad said it's ok. We oughta go on and finish up.

Howie: I move we go on. (A chorus of seconds.)

George: Ok, suckers. Include me out.

Such work stands in sharp contrast to formalistic, or parliamentary, efforts at teaching group action as observed in many classrooms, and on the other hand, to the several kinds of make-believe play games so lacking in reality. While member roles invite detailed comment, we shall simply state the general theory. Our aim was to teach the class how to manage the group process, *to work together as a self directing team with a job to do*. The teacher's role was, in the main, to lead the leaders, to see them face choices and make "mistakes," at least to the point where the total project was endangered.¹⁸ And then, in terms of our theory, intervention was necessary. Education was to be guided so that more education could go on. Thus a group of this sort is not unlike democracy itself—always falling apart and always, we hope, being saved in the nick of time.

Our third approach to group management was via *role practice*. Hendry's¹⁹ work is fully descriptive of our less mature efforts. We started with a persistent gripe, the ever present "youth problem." Why does Crestview have youth problems? Why doesn't somebody do something? After a little warming up, student ideas came as fast as they could be written down. These wants, wishes, tensions, etc., formed the basis for a series of character parts, or roles, each with a central emphasis. Students built them up out of their own ex-

periences and a listing will suggest something of their essential nature.

SOME CHARACTER PARTS: THE YOUTH PROBLEM

Father, no interest
Mother, chronic worry
Minister, bad morals
Business man, costs
Farmer, work, work
Police, "whatya up to"

Sch. supt., discipline
Father Crestview, go slow
Aver. boy, "nothing to do"
Aver. girl, "nowhere to go"
Youth leader, modern ideas,
a youth program

We cannot overstress the realism with which these roles were enacted in two experimental sessions. There was no rehearsal, no coaching, the flow of conversation being impromptu. In these discussions, the teacher took no part until, at last, she stopped the session for a role analysis. In this appraisal the class, forewarned, joined with the participants in judging character parts as to representatives, consistency and the like, with the teacher guiding their analyses and projections. What might have been done over time with this approach, we were never to know at Crestview, due to our own bad judgment. Impressed with our second session, the principal invited the group to "put on the show" in assembly. The thing fell flat. Students either made long-winded speeches or else sat speechless, and all of us lost interest in the psychodrama. We have since profited by this mistake.

VII

The combined effect of these three approaches to group integration is seen in Figure 4. This sociogram is very different from any other. It differs, first of all, in that the class is now definitely *factionalized*. We had not intended this effect, in fact foresaw it and tried to guard against it. While interpretations of its meaning will differ, we do not believe that this structure is undemocratic. It is, for instance, quite like American communities, with special interests, large and small pressure groupings. Its opposite would be, in one form, an unorganized, amorphous mass, quite incapable of concerted action.

Another striking feature of the sociogram is the *increased volume of social interaction*. This can be seen best by reference to

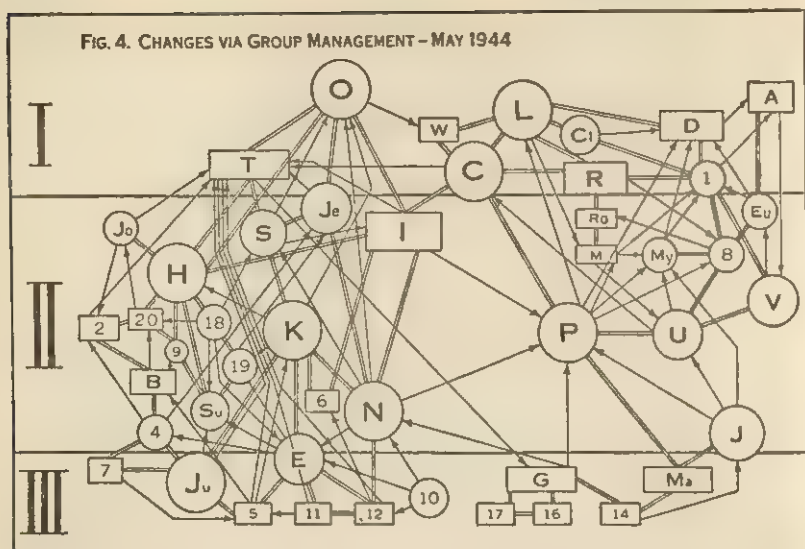


Table I. From October 1942 to May 1944, the average number of best friend choices increased from 2.40 to 2.80, 3.64 and 4.51.²⁰ Thus the trend toward greater contact is clear, and the last two averages in particular are significant. Even more revealing are comparative totals for the two school years. For the first year, 1942-43, when no experimentation was attempted, friendship choices averaged 2.64; for the second year, 4.80. That this increase was due pretty largely to individual guidance and group management is, we believe, a reasonable conclusion. It could hardly be due to a carryover from the first year, for these same youngsters have lived and played and gone to school together most of their life.

Table I is of interest for still other reasons. While these high school juniors did not vary greatly, or uniformly, by social class level in the number of choices made, the same cannot be said for direction of choice. At every sampling period over the two years, upper class children were "over chosen," whereas lower class boys and girls were "under chosen." Put otherwise, *the trend in friend making is upward, not outward or downward.* This phenomenon, with all that it implies, is a basic feature of the adult class system; thus the school group parallels the envioning social order.

TABLE I

AVERAGE NUMBER OF TIMES BY SOCIAL CLASS LEVEL THAT CRESTVIEW 10TH GRADE STUDENTS CHOOSE AND ARE CHOSEN AS BEST FRIENDS OVER A TWO YEAR PERIOD.

| Social Class | OCTOBER 1942 <i>Chooses Chosen</i> | APRIL 1943 <i>Chooses Chosen</i> | NOVEMBER 1943 <i>Chooses Chosen</i> | MAY 1944 <i>Chooses Chosen</i> | AVERAGE <i>Chooses Chosen</i> | | | | | |
|-----------------|---------------------------------------|-------------------------------------|--|-----------------------------------|----------------------------------|------|------|------|------|------|
| Upper | 2.57 | 3.43 | 2.55 | 3.77 | 3.45 | 4.27 | 3.81 | 4.81 | 3.18 | 4.13 |
| Middle | 2.21 | 2.08 | 2.80 | 3.05 | 4.00 | 4.30 | 5.10 | 5.04 | 3.54 | 3.60 |
| Lower | 2.64 | 2.42 | 3.23 | 2.00 | 3.28 | 2.21 | 3.91 | 3.25 | 3.24 | 2.45 |
| Average | 2.40 | 2.40 | 2.80 | 2.80 | 3.64 | 3.64 | 4.51 | 4.51 | — | — |

Figure 4 shows various *positional changes* which we shall not take the time to analyze out. The George clique, for example, is disintegrating. After resisting a host of pressures for the two years, it is splitting up from within. While it may be incorrect to claim credit for this effect, an activity program such as the one described, does churn up a group. It sets going new currents and cross-currents of influence, enforcing new adjustments. And yet, to repeat an earlier inference, the impressive thing is not the changes in but the stability of group structure.

VIII

With schools moving steadily toward social learning, a study of this sort has practical values. Dare one claim to have taught co-operation, to have democratized a classroom, without pre- and end-test measures? Sociograms, with or without status level research, provide a simple indicator of changes, a base line from which to plan individual and group guidance. Moreover, they will bring our all too often chaotic "activity programs" under some kind of control, an imperative if we are to get anywhere in any sort of directive teaching.

Aside from its practical nature, the Crestview study has implications for the growing field of child socialization. Admitting the need for better methods, we believe none the less that *our data support the hypothesis of class level stratification among 'teen age children*. So far this idea, when advanced at all, has rested on fragmental case studies which have been made, in turn, the basis for rather sweeping generalizations. Quantification, along with clearer conceptual definition, are on the way and greatly needed. In comparison with what is known about individual personality variants, we know little about the simplest subgroupal structures, for example pairs, chains, cliques and factions. This is, we believe, a fertile field for the educational sociologist.

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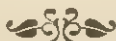
- ² At the principal's request, this group is not named. Members are in effect joint authors of this report, though not responsible for interpretations. Crestview is a fictitious name.
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- ²⁰ Again, for lack of space, the September, 1943, average, 2.24, has been omitted. In all respects, and as to be expected, September data approximate those for October, 1942.

WALTER W. COOK

Individual Differences and Curriculum Practice

The individuals who comprise any organized group, such as a classroom of pupils, differ from one another in many ways, but teachers and administrators too often merely verbalize an awareness of these differences. An examination of many common educational practices reveals the presence of some unfortunate and quite erroneous assumptions about the extent of individual differences in a classroom and the modifiability of this range of differences.

The following article, by Dean Walter W. Cook, indicates some of these invalid assumptions and presents a summary of some of the research that has proved them invalid.



When a random group of six-year-olds enters the first grade, two per cent of them will be below the average four-year-olds in general mental development and two per cent will be above the average eight-year-olds. Disregarding the extreme two per cent at either end, there is a four-year range in general intelligence. By the time this group has reached the age of twelve (sixth grade level) the range will have increased to almost eight years.^{7, 9} As long as all the children of all the people remain in school the range continues to increase, even through high school. When the educational achieve-

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ment of a typical sixth-grade class is measured we find a range of approximately eight years in reading comprehension, vocabulary, arithmetic reasoning, arithmetic computation, the mechanics of English composition and other forms of achievement. In almost any sixth-grade class will be found a pupil with second-grade reading ability and another with tenth-grade reading ability.⁴ In any grade above the primary level will be found the complete range of elementary-school ability. When the General Culture battery, consisting of achievement tests in general science, foreign literature, fine arts, and social studies, was administered to high-school and college seniors in Pennsylvania,⁶ it was found that the upper ten per cent of high-school seniors were above the college senior median and that the lower ten per cent of college seniors were below the high-school senior median.

Although such facts should be basic data in educational thinking, traditional school organization and curriculum practices ignore them. The idea of homogeneous groups of pupils receiving uniform instruction by mass educational techniques from uniform textbooks dies hard. The assumptions persist: that grade levels signify rather definite stages of educational achievement, that the course of study for a grade is the prescribed academic requirement to be administered uniformly to all pupils, that all pupils in a grade should be capable of coping successfully with the work outlined for that grade, that a pupil should not be promoted to a grade until he is able to do the work outlined for that grade, that when individual differences are provided for all pupils can be brought up to standard, that maintaining a passing mark results in homogeneous instructional groups, and that when relative homogeneity of a class does not prevail it is the result of poor teaching or lax standards.

Uneven educational progress has been a major concern of the schools for a long time. The graded school idea was sponsored by Horace Mann, Henry Barnard, and their co-workers during the 1830's and 40's. By 1870, even the one-room rural schools had been graded. Between this time and the 1920's when intelligence tests were first used for grouping, numerous 'patented' plans for preventing 'laggards in our schools' had been tried. The earlier proposals dealt largely with promotion policies: annual, semi-annual, quarterly, subject and special promotions all had a trial. Other plans were concerned with 'holding standards constant' and in-

creasing instruction for slow pupils as in the assisting teacher and vacation classes plans. Others held time in school constant and differentiated the curriculum for fast, medium, and slow learners, while still others held the curriculum constant and differentiated time spent in school. Plans for the individualization of instruction such as the contract plan are more recent. Several of these schemes involved classifying pupils into slow, medium and fast learners. Before the development of standardized intelligence and achievement tests, classification was based on school marks and teacher judgment, but with the development of such tests homogeneous grouping was widely accepted.

The effectiveness of general ability grouping depends upon the relative magnitude of trait differences. It is based on the hypothesis that there is relatively little variation from trait to trait within the individual, that all traits with which the school is concerned are substantially correlated. Evidence from several overlapping fields of investigation tend to refute this hypothesis.^{1, 4} The first is concerned with basic theories of mental organization and primary mental abilities, the second with studies of the so-called 'idiot savant,' the third with asymmetry of development in normal and gifted individuals, the fourth with direct measures of trait variability, the fifth with evidence of correlation between traits, and the sixth with the overlapping in educational achievement of groups which have been made homogeneous with respect to some measure of general ability. Tentative generalizations drawn from this research may be stated as follows: trait variability in the typical individual is eighty per cent as great as individual variability in his age group, trait differences are normally distributed, some individuals are twice as variable as others, and there is no relationship between general level of ability and the amount of trait variability.

Under the most favorable circumstances, that is, when pupils are grouped in X, Y and Z fashion on the basis of an achievement test battery which is heavily weighted in favor of reading and arithmetic scores, we may expect a reduction of about twenty per cent in reading and arithmetic variability.⁴ The extreme X and Z groups will overlap approximately eighty per cent. Instead of a range of eight years in reading ability at the sixth-grade level the teacher has, after grouping, a range of 6.4 years. In other subjects such as art, music, handwriting and mechanic arts, the reduction

of range approaches zero. Consequently, when grouping is practiced, it must be on the basis of status and needs in specific learning areas, that is, pupils must be grouped differently in each subject area. Such groups should be flexible in organization and specific in purpose.

The effect of promotion policies on the variability of classes and achievement standards has commonly been misunderstood. There is a general belief that the trend toward universal promotion has increased the variability of upper-grade classes, lowered their mean achievement and reduced the incentive of pupils to learn. Controlled studies ⁴ have shown otherwise. Schools with rather strict promotion policies retain the slow learning pupils from one to five years longer. The consequent excess of dull pupils in these schools lowers the intellectual level of the classes and achievement is significantly less. The excess of retarded pupils in the upper grades aggravates the range of ability problem and the variability of classes is as great as when universal promotion is practiced. Studies ^{4, 5} have consistently shown that the typical slow learner achieves more when promoted regularly than where he is retarded.

Another prevalent but erroneous idea concerning individual differences is that instructional groups can be made more homogeneous in a given achievement area through effective teaching and diligent study. It keeps company with other ideas inherent in the traditional conception of the schooling process. Education is conceived to consist of learning such things as are found in course of study and textbooks: spelling words, type problems in arithmetic, causes and results of wars, states and their capitals, explorers and where they explored, names and dates, cities and their characteristics, countries and their products, and the seven basic food groups. Good teaching is conceived to consist of threatening, coaxing, drilling, rewarding, punishing, driving, testing and reviewing until the pupils can verbalize these facts. Providing for individual differences means getting all pupils over the passing mark. What harm is there in this simple conception of the schooling process which substitutes information for education?

The basic problem here is concerned with the effect of a period of learning upon individual differences. Are individuals more alike or less alike with respect to a given ability after a period of instruction? Much research,^{1, 4, 8} on this problem is available; it is some-

what contradictory and difficult to interpret, but the following generalizations seem warranted. If the responses to be learned are sufficiently simple and the goals have been so limited that a high proportion of the group can master them during the period of learning, the variability of the group becomes less; but if the task is complex, involving the higher mental processes, and the goals unlimited so that the abilities of the most apt members of the group are taxed during the period of learning, then the variability of the group increases.

Limited educational goals in the form of lists of facts, principles, and type problems, which may be memorized in a rote sense for examination purposes to give a semblance of uniformity of achievement in meeting the requirements of a passing mark result in highly temporary learnings. Early objective tests tended to emphasize this type of learning. Tests of retention administered from three months to three years after a course was completed revealed from thirty to ninety per cent loss.^{3, 10, 11} The forgetting curves for such learning closely approximate those of nonsense materials.

Although deterioration is the rule when factual tests are repeated, it has been demonstrated^{10, 11} that tests of problem-solving ability, reading comprehension, the application of principles to new situations, organizing ability, and the interpretation of new data, measure permanent learnings. That is, meaningful, structured learnings involving problem-solving and application abilities are relatively permanent. Such learning involves unlimited goals and when the abilities of all members of a group are taxed, individual differences increase during a period of learning. The conclusion seems justified, that the emphasis which the traditional schooling process places on striving for homogeneity in classes, getting all students over the passing mark, and providing for individual differences to bring all pupils up to standard, encourages teachers to set goals for instruction which result in temporary factual learning.

Our conclusion up to this point must be that the more effective the instruction, the more individual differences are provided for, the more heterogeneous instructional groups become. Hence, our central problem is how best to meet the needs of individuals in groups of widely varying ability. This calls for changes in attitudes and beliefs regarding the schooling process and for new administrative and curriculum policies. We shall suggest some of them.

The administrative policies have two purposes: (1) to make it possible for the teacher to know the student well enough to meet his needs, and (2) to provide instructional material with a range of difficulty and interest appeal commensurate with the needs of the instructional group.

1) The size of classes must be reduced to not more than twenty-five pupils in the primary grades nor more than thirty above this level in academic areas of the common schools. The practice of giving each elementary-school teacher forty new pupils each year, and of having the high-school teacher meet one hundred fifty different pupils each day, using uniform textbooks and mass instructional procedures precludes the possibility of meeting individual needs.

2) A systematic testing program revealing status and growth in the skills and abilities (not facts) required for optimum adjustment in the culture must be instituted with the results from kindergarten to college graphically portrayed. These begin with relatively undifferentiated tests (Stanford-Binet) at the pre-school level and reach a high degree of differentiation (Iowa Tests of Educational Development) at the high-school level. The purposes of these tests are not the traditional ones, that of holding teachers and pupils to standards and as a basis for promotion and marking. The purpose is rather to enable the teacher to know more about the pupil, the books he can read, the type of problems he can solve, the amount of improvement that can be expected, in short, what he reasonably can be expected to do.

3) A permanent record folder containing in addition to the test results, the health record, samples of handwriting, creative written work, art work, etc., showing development since kindergarten, should be in the teachers' hands, not in the office.

4) The practice of reporting to parents on cards or by letters should be abandoned in favor of personal conferences two or more times each year after the teacher has studied the pupil.

5) The primary basis for grouping children should be physical and social development (probably best indicated by chronological age) since these are the most obvious criteria of status in childhood groups. A child should live and work in the group he most obviously belongs with, one which accepts him and which he accepts.

6) There must be grouping within classes on the basis of status and needs in specific learning areas. These groups should be flexible as to size and duration and specific in purpose.

7) The practice of labeling school books by grade should be discontinued. A code number indicating to the teacher the difficulty of the material is sufficient.

8) In both the elementary and high school the practice of having a teacher teach the same group of pupils from three to six years should be encouraged.

9) At the high-school level there should be special honor classes for students who demonstrate unusual ability in the sciences, mathematics or language.

10) In the high school the practice of integrating English and the social studies in a four- to six-year coördinated sequence with two or three hour daily periods in a laboratory workshop should be encouraged.

11) A wealth of instructional material should be provided. It should have a range of difficulty, interest appeal, and content commensurate with the range of abilities and interests of the class. It should be in the classroom and workshop, not in the library or other special rooms.

12) The traditional inflexible short period daily program at both the elementary- and high-school level should be modified to meet the requirements of the modern curriculum.

The curriculum policies of the modern school have three purposes: (1) to provide flexibility of requirements in order that the potential unskilled laborer and the potential research physicist will not be held for the same requirements, (2) to free the teacher to plan for the welfare and optimum development of individual pupils, and (3) to broaden the curriculum sufficiently to recognize and reward the great variety of combinations of aptitudes and interests of students, enabling them to discover their strengths and weaknesses, and preparing them to fit into our complex society with its multiplicity of demands.

1) The curriculum content should be organized around large units or problems in the social studies and natural science areas. Some of the purposes of these comprehensive units are: (a) To make possible an appeal to many different interests. (b) To make

possible the utilization of a wealth of reading materials with a wide range of difficulty, content, and points of view. (c) To provide possibilities for use of a wide variety of stimulating materials from literature, moving pictures, field trips, museums, journals and the radio. (d) To stimulate and make possible a wide range of activities in reading for different purposes, research, use of reference materials, writing reports and letters, interviewing, presenting oral reports, planning, organizing materials, seeing relationships, developing generalizations, dramatization, construction projects, understanding literature, music and art in proper context, quantitative thinking, making graphs, evaluating evidence, reading maps and diagrams, taking responsibility, coöperating in group activities, and developing understandings, ideals, beliefs, attitudes, and a sustaining intellectual interest.

2) The grade levels at which certain knowledge, skills, and abilities should be learned cannot be determined with any degree of specificity. The graded lists of skills and knowledge provided in traditional instructional materials should be used only as check lists for diagnostic purposes, as sequence materials in developing skills in subgroups, and as material to be emphasized at different times. Perhaps half the school time should be devoted to a systematic development of the skills necessary in the unit activities and related to them as much as possible. It should never be considered that these itemized goals are to be achieved in a one-two-three fashion; once and for all time; out of their functional setting and natural context; and that all instruction should be organized around these piecemeal itemized goals.

3) The pupils should have a large share of responsibility for setting the immediate goals toward which they strive and for evaluating their own work in terms of these goals. This will help insure that the pupils develop high ideals of performance and will focus attention on the next steps in their progress.

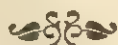
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Chapter Five

LEARNING: MOTIVATIONAL ASPECTS



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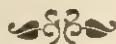
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ASAHEL D. WOODRUFF

Motivation Theory and Educational Practice

Although the general area of motivation is a focal concern both of psychologists and of educators, it appears that the activities of these two groups in this area are often unrelated to each other. Are psychologists working on those motivational problems that most often arise for the teacher? Does the teacher take advantage of all we know about the forces that drive the learner to action? Where should both of these groups direct attention in the immediate future? Dean Asahel D. Woodruff analyzes this matter and makes some clarifying distinctions that will facilitate discussion.



Motivation theorists and educators are working on two ends of the same problem, but without apparent awareness of that fact. Their ideas of behavior, their use of such terms as motivation, stimulus, incentive, response, or energy, and the sorts of things they do in the name of motivation have as little in common as if they were working on totally different problems. For some reason, possibly lack of communication, mutual distrust, or failure to agree on what is important, neither has seriously affected the other's thinking, and neither seems to be conscious of the other's existence. This is evident to some extent from an examination of the typical concerns of each.

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Theorists and research workers give much attention to such areas as the following:

1) Physiological drives.—In this area a fairly bulky literature deals with the nature of cellular life and the processes by which chemical needs of the cell are met through an increasingly complicated physiological structure. An enormous amount of attention has been given to the interesting but academically fairly unimportant sex urge and its role in physical behavior. The question of relative strength of sex and hunger as motivating forces has been studied minutely. Physical discomfort produced by electric shock or harsh sounds has been studied for its effect on the development of ability to discriminate between shapes or designs. To these ends much ingenious machinery has been built and brought to a state of high mechanical refinement.

2) Derived or second-order drives.—In this area much less precise experimentation has been done, but considerable discussion has been engaged in, and has been printed for others to read. There is an emphasis on mechanistic explanations. It is usually assumed that the nervous system is like an intricate net of wiring in which certain connections can be changed by a change in the strength of the currents running over them but in which most channels are mechanistically determined. Within this type of system an effort is made to show second-order drives are built on the foundation of physiological processes. There is a general avoidance of any reference to thought processes, or concept formation as elements in motivation. Because of this, or perhaps contributory to this, is a failure to differentiate between needs and wants. Hence, some writers have built up huge structures of conditioned reactions in which they have attempted to list as subdivided needs everything any individual ever attempts to get or to avoid in his search for satisfaction.

In contrast to this is the psychoanalytic postulate that innate and innately opposed forces, which seem to be in the nature of wills which are independent of the will of the individual, acquire in early infancy a set of preoccupations which henceforth determine the fundamentals of almost everything the individual does.

3) The adjustive or homeostatic nature of behavior.—This is usually confined to the physiological aspects of behavior. In fact, warnings have been issued to the effect that it is hoped no respect-

able psychologist will attempt to build a theory of human behavior on the foundation of homeostatic processes. In spite of such warnings the concept is getting over into studies of human adjustment.

4) The nature of appetites and aversions, or adience and abience, or approach and avoidance.—The rise of these tendencies is usually credited to the operation of conditioning, except in the case of those who feel that our strong directional biases are the product of conflict between innate and largely subconscious forces rooted in infancy.

In the past theorists and experimentalists have been suspicious and unfriendly toward such topics as thinking and its role in behavior, conceptual processes, and conceptual and associational learning as factors in motivation, subjective feelings and points of view of the individual, and the notion that behavior may be steered by some process of self-determination. There are some shifts toward these topics, although in various jargons. G. H. Allport with his fruitful concept of trends in individual behavior, Sherif with his recognition of the internalization of social experiences and the involvement of the ego in self-evaluation, Murphy with his recent emphasis on the difference between canalization and conditioning which needs to be carried much farther, and the work at Cornell on values and concepts, are moves in the direction of a recognition of thought and its role in behavior.

Teachers and counselors tend to give their most significant attention to such topics as the following:

1) Attitudes.—In this area they discuss how the student or counselee feels about many things and how those feelings can be changed. There is much talk about discipline in school and community life, and ways of controlling or guiding behavior toward constructive activities. There is a great deal of concern over what is valued by individuals, and whether an individual values those things which are held to be essential in the dominant political philosophy. There is a lot of concern over the affective preferences and prejudices of the individual, and ways in which these may be modified. Whatever specialists may think of it, teachers must work with maladjusted students, and usually without the aid of specialists.

2) Ways of getting constructive work done.—Countless articles have been written on the nature and use of incentives in learning.

Educators have labored over the problem of whether and how to use marks, degrees, diplomas, and other punishment and reward devices to promote effective study. Most of the rewards and punishments discussed are of the non-physical type such as praise, knowledge of progress, or admonition, although there are still discussions on the value of physical punishment. Teachers and teacher-training supervisors spend considerable time over the problem of 'motivating students,' as it is called, in connection with lesson plans and daily assignments.

3) Ideas and social skills.—The process of concept formation is under steady discussion by those who are trying to improve the teaching of the sciences, both physical and social. Teachers of mathematics and general science have somehow become imbued with the notion that their subjects are above all else the ones in which students may be taught to think, and there is a great deal of debate on the ways of getting this thinking into such courses. No one can escape today the concern over prejudices and their effect on social life, which means that most of us are interested in knowing how they may be changed in order to alter behavior.

Teachers and counselors by and large are suspicious and unfriendly toward physiological and laboratory research, and mechanistic theories of learning and motivation. Teachers, more than counselors, are not impressed with the psychoanalytic structure as far as learning in school is concerned.

Every theorist and experimentalist knows that there are certain principles basic to all behavior which control relations between stimuli and responses, and that physiological needs are an important part of this structure. Educators seem to be unimpressed by this.

Every educator and counselor knows that he must deal with subjective patterns of meaning; that when these patterns are re-aligned and re-ordered through interview or study, behavior changes significantly. Novelists have illustrated this endlessly. Researchers have, on the whole, been unimpressed by this.

Fairly recent trends seem to be overcoming this disparity to some extent, but it is still almost impossible to find written instruction on human motivation which is suitable for counselors, teachers, and personnel workers. It seems important to inquire as to what educational and counseling problems are most in need of careful research and theoretical study. A few are suggested here:

1) The role of concepts in such overt behavior as the expression of opinion, the selection of friends, the election of courses of study, voting, and other significant social behavior.—Even superficial analysis will show that an overwhelming percentage of the content of the whole curriculum is conceptual. There is very little attention given to the development of habits, or physical skills, but years are spent in the effort to acquire mental images of things through the reading of books and through oral exchange of ideas. It is the implied belief of almost everyone who engages in this task, that this body of knowledge is going to do something significant to the behavior of those who possess it.

2) Value concepts and their influence on behavior.—There is no question as to the consistency with which individuals seek those things which have enduring value to them. Many specific acts which appear highly inconsistent become consistent when viewed from the standpoint of the contribution the individual expects them to make to his own well-being. Minority and majority groups, in fact anyone who has a status to maintain, become to some extent propagandists for some set of values. Our schools are committed to the inculcation in students of the values of democracy, but the results are very discouraging. Those who should know why, do not know why.

3) The nature of tastes and preferences.—American tastes in music have been publicly deplored for a long time, but no one seems to know how to change them. Schools have enacted fiascos time after time in the name of developing music appreciation. Some art teachers succeed in helping students learn to love art and some do not, and this variable seems to have no clear relation to the artistic ability of the teacher. Some well-conceived research would be of great value here.

4) The effect of artificial incentives on learning.—This is elusive, but intriguing. When a passing mark becomes the point of focus for both teacher and student, what does the student learn? One possibility is that he learns a method for obtaining a level of mediocrity, which happens incidentally to be achieved through the medium of mathematics or grammar. It is altogether likely, too, that he learns to respect mediocrity, and to recognize its importance.

In a suggestive vein consideration will now be given to one of these areas, by reporting some research now under way at Cornell

University. Wholly on an exploratory basis, a large group of students were given a test of personal values from which were obtained for each student a rank order list of some twelve to twenty-four generalized value concepts. Woodruff's *Study of Choices* was used. The students were also given three of the Thurstone attitude scales, Communism, Sunday Observance, and Evolution. Correlations were determined between the rank of each value for each student, and the score of each student on each attitude test. The values were then ranked for each attitude test according to the size of intercorrelation. There was considerable indication that value patterns and attitude test scores were related. Highest intercorrelations tended to occur when a value concept had a common-sense relationship to the subject of the attitude test. For example, those who valued church activity and religious living were very favorable to Sunday observance, and those who valued excitement and relaxation and recreation were antagonistic to Sunday observance.

One significant thing seemed to be needed to throw light on this relationship. It looked as if each person might have his own notion of how Sunday observance, or communism, or the acceptance of a belief in evolution, would affect each of his cherished values. It appeared a reasonable hypothesis that some means had to be developed to measure the process-concepts, if we may coin a phrase, which have to do with people's ideas of how various goals may be obtained. Another way of approaching this is to suggest that a thing means to someone what it seems to do to him, and that its most important meaning consists of what he thinks it does to him in the area of his most cherished values.

Acting on this hypothesis a tentative study was conceived in which the previous techniques would be enriched by an attempt to measure the concepts, held by the students, of the subject toward which attitudes were expressed. In this study the subject was the proposed abolition of fraternities and sororities from American colleges. The students' concepts of fraternities and sororities were measured by relatively crude devices, and were analyzed with relation to the expressions of value concepts contained in them. These expressions were applied to the related values in each person's pattern, and a weighted score was thus obtained from the five highest values in the pattern. This score was correlated with attitude test scores, and the coefficient obtained for the eighty-four students

was .80. What had appeared to be a promising relationship in the first study was now shown to be a truly strong relationship. It is important to note that this relationship depended on having present two elements, the cognitive mental content, or knowledge subjectively viewed, and the value patterns.

Later in the same term these students were subjected to propaganda on the effects produced in students by fraternities and sororities. Of eighty students measured later, eight, or ten per cent, showed changes in concept scores which went in the 'wrong' direction, as implied by changes in their attitude scores. Of the other seventy-two, half changed both scores in the 'right' or expected relationship, and half changed only one score by a small amount. The correlation between the two sets of scores at the end of the propaganda period was .73.

The findings were interpreted to mean that any object or circumstance which is conceived as a means to the attainment of a strong value, will evoke a favorable attitude, and *vice versa*. A much more adequate study of this is now under way by a capable graduate student.

If these findings are substantiated, as now seems to be likely, certain interesting implications follow.

1) We have several educational processes to contend with in order to influence social behavior. One is concept formation, in which it is necessary to recognize two functionally important types. The first is in the nature of concepts of goals or conditions to be achieved, and their progressive generalization into long-time objectives, value patterns, and ideals. The second has to do with the development of concepts of processes by which these goals may be attained, considering such matters as the maintenance of social approval and the economic use of energy.

Another educational process is that which is coming to be known as canalization, the attachment of affect to certain concepts. In the case of goals, the affective attachment takes the form of value. In the case of processes, which are means to ends, the affective attachment takes the form of interests.

A third educational process is that which has to do with developing the ability to think clearly in the solution of personal problems. Practically nothing at all is now available to teachers which can be put to productive use in teaching.

2) A significant implication is related to the role of thought processes and concepts in the determination of personal behavior, and throws a new light on the need for studying the circumstances under which young people acquire their social ideas. This sort of learning is not fruitfully studied by means of experiments in conditioning. Learning can never be reduced to one theory, because there are several kinds of learning, and they differ not only in terms of the nature of the operation, but also in terms of the level of the nervous system which is most significantly involved.

Theory and research in motivation to be most productive, must concentrate attention on the whole person in the process of adjusting to the total situation. If there is to be value in this area for the educator and counselor, emphasis must be turned from physical mechanics and physiological needs to the higher mental processes and the social and ego needs as they exist in the human family.

On the other hand, teachers and counselors need to recognize the nature of adjustment, and learn to understand the determinants of attention. They need to analyze the school and the community to determine what sorts of psychological situations they create for the individual, and what forces and stresses of a dynamic nature are operating on the student. This would be in contrast to what almost seems a persistent effort to set aside known principles of adjustment and stimulus-response relationships, in the work of the classroom.

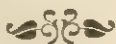
Although it is much more involved, less precise, and more poorly structured at present than the typical laboratory study, the profitable field in motivation is the measurement of ideas and their affective attachments, and the relation of these to the needs felt by the individual. In addition to this, a new view of learning is needed, which recognizes the fact that concept formation, conditioning, and canalization are different things, and that there may be other equally significant departures from any single-theory approach.

HERBERT F. WRIGHT

How the Psychology of Motivation Is Related to Curriculum Development

One of the phrases most often invoked by the teacher is "the needs of children." The frequency of its use implies that the term is a major concept in the planning and conduct of education, but when one inquires what the teacher means by that term, one all too frequently receives a confused reply. Is this, then, merely an example of educational "gobbledegook?" What do we mean by "need"—what children *feel* they need or what adults think children *ought* to need?

The remarks of Professor Herbert F. Wright clarify this ambiguity and show how meaningful and helpful the concepts of "needs" can be for the educator. The student will be rewarded by attention to and discussion of the views offered here regarding the relationships between pupil needs and educational objectives, pupil freedom, and pupil abilities.



The curriculum of the schools should be made to meet the needs of children.

This statement is run of the mill among curriculum builders, and it must be safe to believe that there is something to it. In any case, I leave it to suggest the frame of reference for these remarks about motivation and the curriculum.

But what does the statement mean? What do curriculum builders have in mind when they point to the needs of children? Here

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are some samples of needs that are mentioned in educational writings about child behavior.

The need for optimal health

The need for vocational preparation

The need for recreation

The need for rewarding social contacts

The list is a put-up job. But it may illustrate legitimately a common mixing of two rightfully separate categories.

Children need optimal health; they need vocational preparation. Here, we are talking about what, in the opinion of adults, children ought to have, but seldom if ever strive to get. Children need recreation; they need rewarding social contacts. Now, we are talking about what, in their own living, children very often strive to get, whether adults like it or not.

The needs of the first class, like the need for optimal health, are only projected requirements. They are projected into children by adults, and they do no more than reflect the values of adults. One may call them *normative needs* because they serve the one purpose of expressing social norms or standards. The important thing to be said here about the normative needs is that they lack motive power. This is evident in the fact that we attribute them even to lifeless things, as when it is said of a house that it 'needs' paint.

The needs of the other class, like the need for rewarding social contacts, are not at all merely projected requirements that serve only to reflect adult values. They are positive conditions that exist in children and, as such, they help to create child values. The already common name for them is *psychological needs*. The point in calling these needs psychological is not that they are always known to the individual who has them. The point is simply that, as states of the person they belong to the network of psychological determinants. When they get linked with goals in the environmental part of this network, directed actions occur. Then, psychological needs become charged, as normative needs never do, with motive power.

The time was when the curriculum was based rigidly upon normative needs. Adults decreed that children needed—ought to have—a knowledge of Latin, mastery of the multiplication tables, a nice appreciation of Tennyson, proper manners, in short, 'the cultural heritage,' and, for good measure, periodical spankings. Edu-

cators undertook to see to it that children got these things. They tutored and implored with an awful sense of obligation, but without any regard for psychological needs. This worked out poorly, we know. So often, normative needs ran counter to psychological needs, and the sure outcome was that children were unhappier than they deserved to be. Moreover, it is said that, for lack of 'motivation,' they took in little at a slow rate and then lost much of what they got, so that room was left for better education in behalf of normative needs.

A reaction set in early in the present century when Dewey started his experimental school. The new idea was to base the curriculum upon the psychological needs of children, and so to make education child centered. Children were not to be frustrated by arbitrary rules and assignments. They were to be happy and well adjusted. But that is not all. In the end, the important normative needs were to be met because 'motivation' would, it was thought, guarantee high and efficient intake of the skills, ideas, attitudes, and the like that children ought to have.

Actually, this has all been easier said—*ad nauseum*—than done. But there is no denying that 'the new education' has taken hold. At least, the principle that the curriculum should be geared to the psychological needs of children is generally accepted. Let us be clear about the claims, already touched upon here, that are urged in support of this principle. Primarily, there are two. The one is that heed for psychological needs in the planning and management of the curriculum will promote the happiness and personal well-being of individual children. The other is that this strategy will lead to the fulfillment of the really important normative needs of children, and so bring about the realization by the schools of their broader social objectives.

One point, however, has become increasingly clear. It is that a *laissez-faire* scheme of teachers and things cannot implement effectively the principle of gearing the curriculum to psychological needs. Distressing experience has shown that it is not enough to 'enrich the environment,' bring on the children, and then wait for their psychological needs to do the rest; that one expects too much of children in leaving them to lay down their own curriculum in answer to the question asked each morning: "What would you like to do today?" The formula for these practices contains but two ingredi-

ents: resources for action and a negative, pseudo freedom which consists only in the absence of restraint. Plainly, the resources are indispensable; but we have discovered that real freedom for children to make the most of their psychological needs is far more than the absence of restraint, that it is a complex, positive state of affairs which occurs now and then by happy accident, but usually has to be arranged. Behind this discovery is the insight that psychological needs by themselves get nothing done for the child; that, rather, they function only interdependently with abilities, with environmental facts, such as goals, means, obstacles, and with other determinants in the context of behavior. Arranging *real freedom* for children to capitalize on their psychological needs means controlling in some degree the different parts of this context. But what specific arrangements have to be made? I would like to consider two that look to be essential. Boiled down, they are (1) putting things in order, and (2) adjusting things-to-be-done to abilities.

The first consists in regulating the situation of the child so that, to him, it is understood or, as some prefer to put it, 'cognitively well structured.' An emigrant looking for freedom arrives in New York City. At the time, there are no physical things in the way, and he has the promised permission to do as he likes. But everything is new to him and all in a muddle. So long as this is true, he is not yet free, nor can he be until things get straightened out. The same holds for a child at school when, surrounded by 'materials' galore and many other rudderless children, he is told by a teacher that now he can do as he pleases. Because the emigrant and the child are in poorly structured situations, neither is free to do the things that he needs to do.

Arranging school situations so that they are cognitively well-structured requires, first, of those who are in charge of the curriculum that, beyond arousing needs, they define goals or, better, help children to do so. This is no easy matter like the one of setting up lesson aims that suit the teacher's wants, but not the child's. It is, I take it, a difficult matter, the most essential point of which is that children can be helped to define goals that really exist for them only after their psychological needs have been diagnosed. Going about it otherwise means returning to a curriculum based upon normative needs.

It might be thought that in diagnosing a need one puts a

finger on a goal that is known to the child, so that there remains no problem of defining ends or objectives. We used to think that way about instincts. Here, it is urged that children do not necessarily know what, psychologically, they need. Moved strongly by a longing for status in a group, a boy may understand nothing more about the whole thing than that he wants to punch another boy in the nose. Clinicians, and some teachers, have learned to prove the existence of needs like this one by watching for a variety of symptoms; * but when that much has been done, there is left over the task of helping the child to settle on a potentially satisfying goal. In this case, it could be carrying the lead in a school play, taking charge of the blackboard erasers, becoming the homeroom secretary, or all three, and each with aiding and abetting by the teacher. In any case, the child is not left unfree because he is in the dark with needs, but without goals to go with them.

Arranging school situations so that they are cognitively well-structured requires, secondly, that the child be helped to define paths leading to his goals. A goal can be only a point at a distance, with a void in between. Then, all the child can do is dream about it. On the other hand, a goal can be an extended region of activity the finish line of which is tied in closely with steps on the way, so that these steps become parts of the larger goal-structure. John wants to 'play in the band.' An adult at school has helped to set up this goal, but lets it go at that and, except for tall imagining, so does John. Henry, after exchanging ideas with his teacher, wants to mow lawns or deliver papers to earn money to spend on a cornet to blow thirty minutes every day so he can play in the band. He can act with some degree of effectiveness because there is a path to follow. Henry's teacher has helped to arrange a situation in which a goal with a path leading to it are defined. Situations like this increase the freedom of children to satisfy their needs.

A third requirement, if school situations are to be structured

* The problem of diagnosing the psychological needs of children is a big and significant one. I am not referring to the old quest for the needs of children-as-a-class, which, as many see it now, was futile and misguided. Nor am I thinking of tests (not even the Rorschach), although they often give valuable information along this line. I have in mind the problem of setting up criteria that adults, like teachers and parents, can use in diagnosing the important needs of particular children in the circumstances of everyday life. But discussion of this problem cannot be crowded in here.

well, is that barriers be definite. It is true that due allowance for psychological needs calls for the minimizing of restraints. At the same time, an unequivocal 'no' may help a child to know where he stands, and thereby increase real freedom. 'Keep Off the Grass' and 'Do Not Enter' signs do the same for adults. Because it is clearer, a 'no' can be more liberating than weasel words, which only create uncertainty and insecurity.

A special requirement in structuring the situation of the child is that of letting him in on what lies ahead. The idea here, as some word it, is to give children a future time perspective. This becomes increasingly important as pupils grow older. In the school of the old education, the teacher was an authoritarian leader, and like all autocrats, she took charge of the future. The child rarely could look ahead and know for sure what was coming next. But what lies ahead is equally unknown to children in a *laissez-faire* situation, where nobody knows what the future holds. The importance of this factor is plain. Constructive action requires planning, and planning is impossible if the child is bound to the present. Also, with absence of time perspective there goes a loss in security for, if the future is blank, happenings to come are seen as potentially good and bad.

To sum up, when the school situation is cognitively well-structured, the child has definite goals along with paths leading toward them, is clear about what he may not do, and knows what is coming next. It is suggested that in schools with adequate resources for action where situations of this kind are arranged, children are in a good position to get done what we used to only hope their needs alone would make them do.

I turn to the second arrangement by which to increase real freedom. It consists, again, in adjusting 'things to be done'—in the school, curricular offerings—to abilities. Often, resources for action in the objective environment are not accessible to the child in any way that counts as far as behavior is concerned. This is true of readings on the twelve-year mental level in a school library for children mentally eight years old. In every such case, the child is not really free to cope successfully with the things at hand, no matter how strong his psychological needs to do so, because they are beyond the reach of his abilities. It is clear, then, that abilities do limit the range of the behavior depending on psychological needs. But there is a larger aspect of this problem.

In our culture, however it may be in others, children have needs for self-esteem and social approval, each gratified by success and thwarted by failure. Owing to their broad range of influence within the person, these 'ego needs,' as they have sometimes been called, are of fundamental importance. When they are satisfied by success, the goals set by the child are high, and his morale is good. When they are thwarted by failure, the goals set by the child are low, and his morale is poor. Success, here, means doing as well or better than one aspires to do, and failure means the opposite—performing below one's level of aspiration.

Now, success experience has been shown to require a nice balance between abilities and the demands of a situation. More specifically, success is possible and satisfaction of ego needs can occur only when the activities which the child undertakes fall within an intermediate zone of difficulty. This generalization has been supported experimentally, and it is illustrated often in everyday life. Thus, a boy of twelve cannot experience success if an athletic coach imposes on him the goal of high-jumping seven feet. On the other hand, he cannot experience success if given no higher objective than that of jumping one foot. He would clear the bar at this latter height, but the performance would be too far below his level of aspiration to yield the true success experience which derives from gratification of ego needs. The same child will experience success if, advised possibly by a wiser coach, he sets for himself the goal of jumping four feet, and makes it.

In instances like the last, requirements are adjusted to abilities in such a way as to make it possible for the child to gratify his ego needs and act effectively. Such adjustments are impossible if the curriculum is inflexible and burdened with arbitrary standards. They are impossible, too, in a *laissez-faire* situation where the whole field of action is so unclear that the child has no way of judging what he can or cannot do, and gets no help in setting his goals. If the proposed adjustments are to be made correctly, the child must be given considerable latitude to elect his own tasks and to set his own pace. Otherwise, there is almost sure to occur frequently the imposition of requirements which are too hard or too easy, too far above or below the range of difficulty where success is possible. But what becomes of normative needs if children are allowed so much liberty? In the degree that the child is encouraged to choose his own activi-

ties and to set his own pace, will he not loaf, get by on as little work as possible, and so fail to accomplish anything worth while? It is suggested that he will not—so long as one condition holds. The condition is that the child be in a situation where he enjoys the essentials of *real freedom*. When children are free, as that state of affairs is understood here, they do not get by on as little as possible. The children who do are precisely the ones who are hemmed in by just those inflexible requirements and arbitrary rules that are supposed to make them work hard! In our culture, at least, children given a decent amount of freedom try to achieve on the highest level possible for them precisely because their ego needs, for self-esteem and social approval, drive them to do so. For evidence on this, one has only to follow a small boy through a typical Saturday, or refer to some of the studies on level of aspiration. There is no argument at this point for a soft curriculum, only for one which, because it can be adjusted to the abilities of children, gives psychological needs a fair chance to do their part in bringing about constructive action.

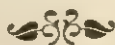
The following are key points of this discussion. Applying the psychology of motivation to curriculum development means in part gearing the curriculum to psychological needs. This calls for a liberalizing of standards and requirements. Yet it calls for more than a purely negative 'freedom,' for children are not often motivated to act effectively when they are only confronted with raw resources for action and then left to shift for themselves. Children can be motivated to act effectively if certain controls are exercised over determinants that interact with psychological needs in the whole context of behavior. These controls may be looked upon as helping to guarantee a real freedom for children to behave as, in itemizing their normative needs, we say they should.

PAULINE S. SEARS

Levels of Aspiration in Academically Successful and Unsuccessful Children

Considerable experimental research has disclosed a wide range of differences among learners with respect to the discrepancy between an individual's level of aspiration and his level of performance. Knowledge of the pupil's absolute level of aspiration is not sufficient for understanding and guiding his rate of progress. What is needed is information about the levels of aspiration and performance, *relative to each other*, and insight into the variables that might account for the individual differences in this relationship. Professor Pauline S. Sears, in her well-known and competent inquiry, attempted to cast further light on the nature of these individual differences. It provides additional knowledge of the relationship between the learner's level of aspiration and his previous experiences with success and failure.

As Professor Sears points out, this study was conducted approximately fifteen years ago and therefore the emphasis on success and failure represented in it may not obtain in the schools of today. This observation does not, however, affect the validity or meaningfulness of her findings. Success and failure can be used as variables in the design of research, whether they are found naturalistically or introduced as experimental factors.



The recent work employing the concept of level of aspiration has uniformly shown that wide individual differences appear in the

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statements of different persons with respect to their goals and aspirations. Furthermore, there is evidence that levels of aspiration for certain tasks are fairly stable with time (5), are markedly influenced by experimental stimulation leading to experience of success or failure (20), and show a certain amount of generality from task to task (5; 8; 10). Little experimental work has, however, been done on the isolating of variables associated with individual differences in levels of aspiration. Hoppe (11), Jucknat (14), and Frank (6) give some slight evidence, chiefly of anecdotal character, that such differences are correlated with broad personality traits (e.g., the feeling of inferiority, ambition) which appear in many life situations. Gardner (9), using a comprehensive rating scheme with unusually qualified raters, has failed to find clear evidence of such correlation. Obviously a relationship of this kind requires that levels of aspiration for different tasks themselves be rather highly correlated, the evidence for which is somewhat conflicting (5; 8; 10).

In the search for a general personality factor, little attention has been paid to the problem of the meaning of the individual task to the individual subject. Most individuals have formed characteristic personal attitudes toward life activities in terms of their general experience with that group or category of activity. Since these attitudes probably become more generalized with time, it is reasonable to suppose that some part of them may carry over to tasks even as far removed from the usual course of their routine as synonyms or target tests. Gould (10) observed that in her situation there were differential responses to tasks labelled (by the subjects) "intellectual" as opposed to those called "motor" or "athletic"—i.e., differences in reaction to tasks carrying different meaning.

Such differences in the individual's perception of the task in relation to himself may be considered to have been built up in somewhat the following fashion: the child is informed, by example and precept of prestigious persons, as to what are the valued activities in the particular culture or subculture of which he is a member.¹ These values, incorporated in the ego, become reference points for self-judgments of success or failure; that is, the child cannot succeed or fail in an activity which has for him no ego value. In those activities in which he has *ego-involvement*, he can, and does, succeed

¹ This discussion largely follows Sherif's excellent analysis of social norms (19).

and fail. Ego-involvement may be demonstrated behaviorally by what Frank (6) has called "self-competition" in the task situation. The individual showing self-competition indicates by his behavior that he wishes or needs to perform well in order to maintain status, and he markedly exerts himself to make a good showing.

In addition to these deep-laid involvements, the child may find it essential to derive some immediate, temporary social approval from certain situations in which he finds himself in contact with a prestigious person. In this case the emphasis is more on the situation than on the task, but here also the child's ego is involved in search of self-esteem, and here also he can succeed or fail. For this form of behavior Frank has used the term "awareness of social pressure," and assumes it to be present when the individual during his performance of a task shows acute consciousness of the presence of another person, by restlessness, becoming flustered, nervous laughter, blushing, or undue facetiousness.

Frank has found that the presence of ego-involvement, as indicated by his two criteria of self-competition and awareness of social pressure, is correlated with divergence of the level of aspiration from the preceding performance in both directions: the aspiration may be higher or lower than the performance when ego-involvement is present, but not equal to it. The degrees and direction of deviation are markedly different for different individuals, however, and are relatively stable in time.

It is obvious that different individuals have had past success in varying degrees in the achievement of ego-gratification with various tasks all possessing ego value. It is a reasonable assumption that these differences in success will influence the individual's anticipation of future gratification in the further performance of these tasks. One way in which such anticipation might be expected to show itself is in the verbally-stated goal of the individual's efforts--the level of aspiration.

The hypothesis on which the present experiment rests is that one factor in the level of aspiration pattern for a given task is the characteristic past experience of success or failure which the individual associates with that task. In other words, one might expect different levels of aspiration for a given task in ego-involved subjects who have in the past characteristically experienced different amounts of success or failure with that task, and who, therefore,

probably anticipate the individually characteristic amounts in new performances in the same task or similar ones.

METHOD

1. Choice of Tasks and Subjects

The evaluation of past experience of success or failure was made on the basis of achievement in the academic school subjects of reading and arithmetic in children of 4th, 5th, and 6th grade standing. The tasks used for the work on level of aspiration were likewise derived from reading and arithmetic. School life, at this age level, constitutes one of the large spheres of influence in the life of the child, and success or failure at academic work appears to exert a strong influence on his general feeling of superiority or inferiority. Cultural pressures toward achievement are exerted on the child from all sides in this field. In some extra-curricular activities belonging to school life (e.g., football for teen-age boys) success wins social approval uniformly from other children but less regularly from the adults who represent the more permanent ethical preceptors of childhood. Furthermore, the use of school subjects permits (1) the use of fairly objective correlates of success and failure in the past (school marks), and (2) the employment of tasks which closely resemble the work by which these marks were earned as experimental materials for determination of levels of aspiration. The age range of 9 years to 12 years was chosen as one in which the child has had sufficient experience in school to form definite attitudes with respect to his excellence of performance in the academic work. The child of this age is not yet so advanced educationally, however, that the fundamental subjects of reading and arithmetic have become merely tools which are taken for granted in the carrying out of more complex pursuits.

Since the levels of aspiration are determined with the same (or closely related) materials as those in which the experimental subjects have previously succeeded or failed, the questions of generality of the relation between level of aspiration and performance or the transfer effects of success or failure from task to task are as far as possible eliminated. Moreover, levels of aspiration determined on

tasks which closely resemble those in which success and failure in life have occurred, seem more directly and practically significant than those determined on less familiar, more atypical exercises.

Variation of the factor of past experience of success or failure was accomplished by the selection of three groups of subjects. A "success" group was composed of children who had shown during their entire school experience objective and subjective evidences of success in all of the academic school subjects including reading and arithmetic. A "failure" group was composed of children who, by the same criteria, had had the opposite sort of experience. A mixed group, called the "differential" group, was made up of children who had had successful experiences with reading and unsuccessful experiences with arithmetic. Experiences of "success" or "failure" were judged, for purposes of this experiment, by a composite criterion which included both the subjective aspects of the experience, as described by the child himself, and the more objective measures such as school grades and scores on achievement tests. The dimensions on which the child's attitude was rated are defined and described in another paper (18). The objective measures of school marks and achievement-test scores constitute presumptive evidence of the experienced success or failure. No child, moreover, was included in the experiment who appeared to lack ego-involvement in his school work. Ego-involvement was defined in terms of the degree of the child's involvement in the quality of his performance. For purposes of the present study only the degree of involvement presumed to be necessary in producing experience of success or failure was required. It was rated in terms of opinions of the teachers and the experimenter, after the latter had made a systematic clinical study of each child and had had considerable discussion with him of attitudes toward work.

Since the experiment was planned as an intensive study of a small number of representative children, a rigorous selection of cases was attempted in terms of matching, so that the three groups could be equated in terms of such variables as chronological age, mental age, and sex, while widely contrasted with respect to the factor of academic success. The matching was accomplished within adequate limits, and the contrasts, for the three final groups of 12 subjects each, are statistically significant on all measures. A relative difference could not be avoided in attitudes toward the two kinds

of subject matter employed: reading proved more differentiating than arithmetic, but the contrasts between groups, while not as large on the arithmetic measures as on the reading, are still satisfactory. Table 1 gives the means, for the three groups, of the measures used in equating and differentiating them. Standard deviations have been omitted for brevity's sake and because the groups do not show significant differences in variability.

2. *Materials*

In order to include for each subject a sufficient number of separate measures of levels of aspiration so that a meaningful determination of individual central tendency and patterning may be made, a number of items of the same order of difficulty are required. For practical reasons each item must be short, so that the performance of the entire series will not take too much time; and, preferably, there should be little practice effect from the beginning to the end of the series. The materials judged most suitable for this work were: (1) in reading, multiple-choice word-meaning items, and (2) in arithmetic, problems in addition.

a. *READING TASK.* The series making up the experimental task consists of 120 multiple-choice word-meaning items, each of which contains an initial word and 5 choice words. A synonym for the initial word must be chosen from among the 5 choice words. The items are arranged in two forms, each containing 20 sets of 3 items each. Each set was performed as one trial.

Most of the items for this task (103 of 120) were taken from the I.E.R. Vocabulary Test (Easy Words) (13), the items of which are considered to be roughly equivalent in difficulty. Eight additional items were selected from the word-meaning exercise of one of the New Stanford Achievement Tests (15).

Nine others were constructed by the experimenter. All the initial words and all but 18 of the 600 choice words are included in Thorndike's first 1000 in his *Teacher's Word Book* (21). As a precaution against failure of equivalence, the initial words were separated and arranged in a balanced order in the final two forms of the reading test on the basis of their position in Thorndike's first and second 500.

TABLE 1

COMPOSITION OF EXPERIMENTAL GROUPS IN TERMS OF CRITERIA OF SELECTION

| <i>Criteria *</i> | <i>Success</i> | <i>Failure</i> | <i>Differential (Success Reading; Failure Arithmetic)</i> |
|--|----------------|----------------|---|
| Number of girls | 6 | 6 | 6 |
| Number of boys | 6 | 6 | 6 |
| Intelligence quotient (1937 Stanford-Binet) | 113.00 | 111.33 | 115.17 |
| Chronological age (months) | 127.17 | 125.00 | 126.58 |
| Years of school experience | 4.08 | 4.08 | 4.08 |
| School grades: academic subjects | 1.46 | 3.10 | 2.11 |
| non-academic subjects | 1.87 | 2.57 | 2.45 |
| reading | 1.30 | 3.06 | 1.77 |
| arithmetic | 1.45 | 2.91 | 2.72 |
| Stanford achievement test: 1939, reading | 119.08 | 104.17 | 119.25 |
| 1939, arithmetic | 109.33 | 98.67 | 99.17 |
| previous, reading | 117.91 | 108.88 | 116.73 |
| previous, arithmetic | 111.90 | 104.75 | 102.00 |
| Self-appraisal: academic subjects | 1.91 | 2.63 | 2.89 |
| non-academic subjects | 2.16 | 2.34 | 2.31 |
| reading | 1.33 | 3.08 | 1.42 |
| arithmetic | 1.67 | 2.58 | 3.67 |
| Examiner's appraisal: self-confidence, reading | 1.42 | 4.08 | 1.42 |
| arithmetic | 1.42 | 3.50 | 4.08 |
| Nationality and race: | | | |
| Italian-born parents | 3 | 2 | 2 |
| Foreign-born Jewish parents | 3 | 0 | 0 |
| American-born Jewish parents | 3 | 3 | 3 |
| American-born non-Jewish parents | 3 | 7 | 7 |

* The school grades, self-appraisal (ratings by the child) and examiner's appraisal ratings are made on a scale of 1 to 5, with 1 the top, or good, end of the scale. The school grades represent averages of the entire academic records (at least 3 years) for these subjects. The Stanford achievement-test scores are given in terms of quotients. The 1939 results are from tests conducted by the examiner at the time of experiment; the previous results are from tests given by the school a year or so before.

b. ARITHMETIC TASK. The arithmetic examples were slightly modified from the addition form of the Courtis arithmetic tests.² Each example used consists of 4 two-place numbers. Three examples are grouped to form one trial, the trials being of roughly

² Dr. S. A. Courtis was good enough to provide this material.

equivalent difficulty. Two equivalent forms were made up each containing items for 20 trials.

Since Jucknat (14) has shown that transfer of the effects of success or failure on one task to the levels of aspiration in another occurs only when the tasks possess a certain degree of similarity, it is important in a study involving this consideration that the subjects perceive the experimental tasks as in a significant sense similar to or representative of the life tasks—in this case the academic subjects, reading and arithmetic. At the age levels included, the work in arithmetic in the public schools consists chiefly of the four fundamental operations, and for the younger children in the group it is limited to two or three of these operations. Addition seems always to be regarded as first and primary. The form of arrangement of the word-meaning series was made similar to that of the school reading achievement tests commonly used; the children were required to pronounce every word orally, and it was noted that they usually knew the meaning of every word. The mimeographed forms employed for both tasks, moreover, were plainly labelled "Reading Test" and "Arithmetic Test," and in speaking to the children the experimenter always referred to them in this way. The presumption, therefore, appears justifiable that the experimental materials were thought of by the children as representative (although small) segments of the fields of study of reading and arithmetic.

3. Method of Presentation of Tasks

The two tasks were administered as speed tests, time being taken with a tenth-second stop watch for each set of three items. Speed appears to be a more practicable measure on work of this kind than persistence or power, since the trials must be short and comparable in difficulty. At the beginning of the performance the experimenter announced that every word, or every example, was to be done correctly; if errors were made, the subject would be stopped and made to correct them. Ordinarily these instructions were carried out specifically once near the beginning, in order to establish an accuracy set for the work. Thereafter in order not to slow down the performance an occasional error was overlooked, unless it appeared that the child was working carelessly, in which case further corrections were made.

4. *Neutral Session*

At the first experimental session, both reading and arithmetic tasks were administered. Half the children were given the reading first, half the arithmetic. Before the performance of the reading task the following instructions were given orally:

Directions: On this reading test you must read every word on each line aloud. Then you must draw a line under the word which means the same as the *first* word in the line. You have to get every one right, but besides that I want you to do it as quickly as you can so as to make a record. This is a real speed test. I have my watch and I will see how fast you can do it. Now do the first set—ready, go.

After the first sample had been given, the experimenter said:

That was fine. You did that in — seconds and every word was right too. Now before the next one I want you to tell me how many seconds you are going to try to do it in. Do you know what a goal is? It's what you try for. For example, if you are in the 2nd group in reading in your class, you say to yourself, "Now I'm going to try and work until I get in the 1st group." Being in the 1st group is your goal. What I want you to tell me is your goal for reading each one of these. You did the 1st one in — seconds. What are you going to try to do this one in?

These instructions were given in an appropriately modified form for the arithmetic task.

Two sample trials were followed by 20 regular trials. After each trial the child was told his performance time, and then either spontaneously gave his next level of aspiration or was asked for it by the experimenter, who used the words: "Now what are you going to try for?"

During this entire session, after the sample trials, the experimenter abstained from any except the most casual comment on the performance. No child was told what any other child had done, nor what an average performance time was, although frequently these questions were asked by the children. The subjects were asked not to discuss the work with others in their room. Apparently none of them established an independent standard with which to compare himself, and the only judgment of the excellence of performance which anyone actually made was in terms of his own previous per-

formances as reported by the experimenter. This outcome was not unexpected, as it is known that young children are not accustomed to thinking of time in terms of second intervals, especially in relation to their performance in short school tasks.

After the first, or neutral session, half of each group of subjects was given the reading material under success and the arithmetic under failure conditions, while the remaining half were given arithmetic under success and reading under failure conditions. All subjects performed *on both materials* in the first session under neutral conditions, and on subsequent days one material under success, the other under failure conditions. The neutral, success, and failure sessions were each separated by two or three days, and the order of presentation of success and failure was balanced for the group.

5. Success Condition

The subject coming for a success session was greeted as follows:

You remember that reading (or arithmetic) test you did the other day? I have been looking over my papers and I find that you made one of the best scores in my entire group of children. I have given that test to children in several schools, and your score stood out as one of the very best, even among those of children of much higher grades. It really was wonderful! It was so good that I want you to do the test again, just to make sure it wasn't a chance, but so we can see if you really are that good.

This speech was made extemporaneously, but the form given above was adhered to fairly closely. The "success" procedure then followed: the first trial was reported to the subject (regardless of its absolute goodness) as having been made at a speed which was the second or third best score of his previous (neutral) session. The second and third trials were reported each as better than the trial preceding. The fourth trial, and the eighth, twelfth, sixteenth, and twentieth, were reported as somewhat worse than the preceding trial. All other trials were reported as better than or equal to their predecessors. The attempt was made, in so far as the limitations of the situation permitted, to see that the reported time for each trial met the level of aspiration just set. Errors, unless obvious, were completely overlooked. The experimenter commented freely, and always favor-

ably, on the performances, using superlatives and comparing the performance favorably to that of older children.

The purpose of the five relatively poorer trials was twofold: first, it was desired to ascertain if brief failures, interspersed among the successful trials, would affect the levels of aspiration in a manner comparable to that observed under conditions of predominant failure; and secondly, it is obviously impracticable to report each of 20 trials as better than the preceding trial. Since poorer performances were, therefore, to be interspersed among the improved ones, this was done systematically according to a predetermined order.

Although the children showed little ability for estimation of *absolute* time intervals of the order involved (10 to 70 seconds), they naturally now and then formed judgments of the *relative* speed of one trial as compared to that of the just previous trial. This fact led the experimenter in a few instances to deviate from the regular procedure just outlined. If it then became necessary to report a relatively poorer score at an inappropriate time (in terms of the predetermined schedule) the failure aspect was minimized as much as possible. ("That was a shame, you just got mixed up there, didn't you?") The next scheduled failure trial was then omitted, the irregular one having taken its place. For the most part the children were too busy to form judgments of the elapsed time, and in general the experimenter was able to report the time according to plan, apparently without the slightest suspicion on the part of the child. The actual difference between the true time and the reported time was in most cases not great, so that not infrequently it was possible to report the true time. Once or twice during the session when the true time was reported, the experimenter showed the time on the stopwatch to the child in order to make the total effect more convincing.

6. Failure Condition

Sessions under this condition were carried out in a manner parallel to the success schedule outlined except for the substitutions required to produce the experience of failure. The session began with the following remarks from the experimenter:

You remember that reading (or arithmetic) test you did the other day? I have been looking over my papers and I find that you made

one of the worst scores of my entire group of children. You made many mistakes and did the examples more slowly than most third-grade children. I can't understand how you could have done so poorly. I want you to try it again now so we can see whether it was just a chance or whether you really are that bad.

Thereafter each trial was reported (within the limits previously described) as worse than the preceding, except for trials four, eight, twelve, sixteen and twenty. For these five trials mild success was reported, the experimenter observing: "Now that wasn't bad. That was really a pretty good score. If you could do that all the time, you would be doing all right." With the report of other trials comments such as, "No, you're getting worse," "Even worse," and the like were made. Errors were usually pointed out and the child made to correct them.

At the end of the session a friendly, encouraging talk was had with the child. Usually it was possible to say that while his speed was not great, the work was accurate, and that whereas speed was not the most important thing in school and would increase with age anyhow, accuracy was always important. Good qualities of work in the same subject matter on a previously completed achievement test were mentioned and praised. Then a test of an entirely different type was administered with approval for the performance. This procedure was intended to overcome undue frustration. Apparently it was effective in that no child left the failure session with ill-effects from the experimental stimulation.

RESULTS

1. *Derivation of the Discrepancy Score*

The chief measure of the relation between the level of aspiration and performance is designated as the *discrepancy score* (cf. 17). A single discrepancy score is the difference between the performance time of a given trial as reported to the subject and the level of aspiration which he sets for the succeeding trial. Since in this study all scores were reported in terms of seconds of time, and a level of aspiration lower than the performance represents a "higher" goal, the signs of the discrepancies have been reversed, so that a positive discrepancy indicates a goal for achievement better than that of the

preceding performance. The median for each individual of the 20 discrepancies for each condition and each subject matter has been calculated separately.

The reliability coefficients (split half) of the discrepancy values are .91 for the reading (neutral condition) and .94 for the arithmetic (neutral condition), when the total group of 36 is used for the calculation. The product-moment r between discrepancy in reading and in arithmetic (neutral conditions) with the three groups thrown together ($N=36$) is $+.74 \pm .05$. Correlation coefficients between actual performance time and size of discrepancy (also neutral conditions) computed for all groups combined are, for the reading task, $+.39 \pm .10$; for the arithmetic task, $+.20 \pm .11$.

2. Differences in Discrepancy Between Groups

Table 2 presents the means and standard deviations of the discrepancy for all groups with each of the three experimental conditions. For group comparisons the table should be read horizontally. Direct comparisons of the measures may be made for the success and failure groups (i.e., those who have experienced past success or failure) on both reading and arithmetic. The differential group was chosen so as to resemble the success group in reading and the failure group in arithmetic, and may, therefore, be compared to both the other groups in these terms.

The failure group, as contrasted with the success group, shows generally larger discrepancy scores and greater variability of the discrepancy. The differential group shows less discrepancy and variability values on reading and larger values on arithmetic, thus resembling the success group in reading and the failure group in arithmetic. Differences between the differential and success groups in reading and between the differential and failure groups in arithmetic are very small, as would be predicted from the hypothesis that attitudes of success and failure influence the levels of aspiration.

That the means do not fully express the result of varying the past experience of success and failure is seen by the distributions of the groups plotted in Figure 1. Here it appears that the feature of contrast in the discrepancy scores is not found in their means but rather in their dispersions. For the reading material, the scores of the success group are closely bunched in a small positive dis-

TABLE 2
MEAN DISCREPANCY AND STANDARD DEVIATION OF DISCREPANCY FOR THE 3 GROUPS
UNDER NEUTRAL, SUCCESS, AND FAILURE CONDITIONS

| | SUCCESS GROUP | | | | FAILURE GROUP | | | | DIFFERENTIAL GROUP | | | |
|---|---------------|------|---|------------|---------------|------|---|------------|--------------------|------|---|------------|
| | N | MEAN | D | σD | N | MEAN | D | σD | N | MEAN | D | σD |
| READING | | | | | | | | | | | | |
| Neutral condition, total group | 12 | 1.92 | | 1.59 | 12 | 5.50 | | 6.14 | 12 | 1.88 | | 1.15 |
| Neutral condition • | 11 | 1.45 | | 0.51 | | | | | | | | |
| Subjects receiving success stimulation •• | | | | | | | | | | | | |
| Neutral condition | 6 | 1.50 | | 0.50 | 6 | 7.83 | | 6.18 | 6 | 2.33 | | 0.57 |
| Success condition | 6 | 1.00 | | 0.57 | 6 | 1.17 | | 1.06 | 6 | 1.17 | | 0.36 |
| Subjects receiving failure stimulation | | | | | | | | | | | | |
| Neutral condition | 6 | 2.33 | | 2.14 | 6 | 3.17 | | 5.13 | 6 | 1.42 | | 1.36 |
| Failure condition | 6 | 2.83 | | 2.61 | 6 | 3.75 | | 3.17 | 6 | 4.17 | | 2.42 |
| ARITHMETIC | | | | | | | | | | | | |
| Neutral condition, total group | 12 | 2.17 | | 2.46 | 12 | 6.71 | | 8.56 | 12 | 4.54 | | 5.04 |
| Subjects receiving success stimulation | | | | | | | | | | | | |
| Neutral condition | 6 | 2.17 | | 3.28 | 6 | 6.08 | | 8.98 | 6 | 1.42 | | 4.24 |
| Success condition | 6 | 0.67 | | 0.47 | 6 | 3.17 | | 2.32 | 6 | 2.42 | | 2.71 |
| Subjects receiving failure stimulation | | | | | | | | | | | | |
| Neutral condition | 6 | 2.17 | | 1.17 | 6 | 7.33 | | 8.08 | 6 | 7.67 | | 3.62 |
| Failure condition | 6 | 3.67 | | 1.62 | 6 | 9.58 | | 5.97 | 6 | 9.33 | | 4.87 |

• One subject has been omitted from these calculations, since her discrepancy score falls at a point 11 sigma from the mean of the distribution (computed without her).

•• Results for the total groups of 12 under neutral conditions have been broken down into the two sub-groups, one of which later received success stimulation, the other of which later received failure stimulation. The sub-headings "neutral condition" and "success condition" include the results from the same subjects under the two conditions.

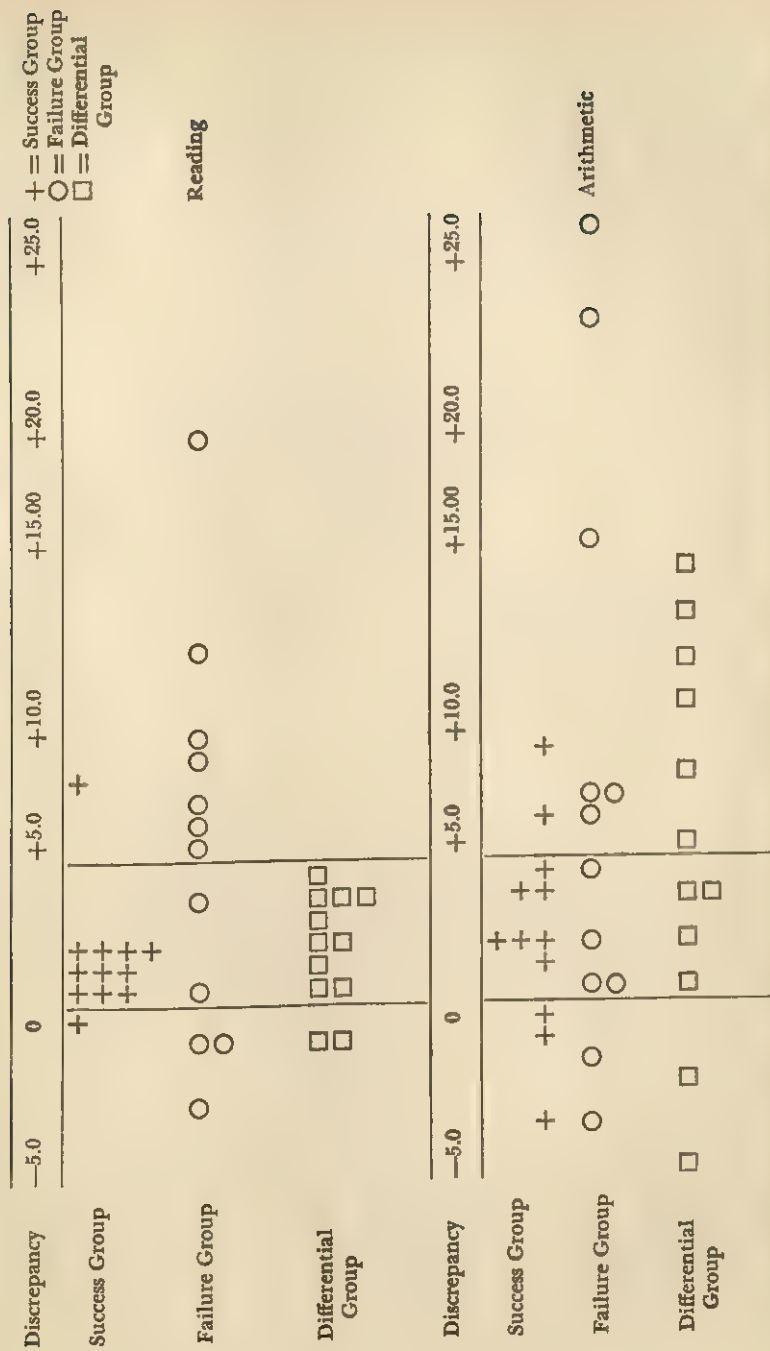


FIGURE 1. Comparison of groups: discrepancy scores, neutral condition, of groups varying in past experience of success or failure.

crepancy range. The same is true, although to a less extent, of the scores for the differential group. The failure group, on the other hand, scatters its scores widely in both directions from the mid-point of the success group values, tending slightly more in an upward than in a downward direction. The contrast between the groups is not quite so marked on the arithmetic material, but the same general tendencies appear. In this case, however, the differential group spreads its scores in the same manner as the failure group.

TABLE 3
PERCENTAGES OF EACH GROUP FALLING IN EACH OF THREE CLASSES
OF DISCREPANCY SCORE

| | <i>Success Group N=12</i> | <i>Failure Group N=12</i> | <i>Differential Group N=12</i> |
|--------------------------------------|-----------------------------------|-----------------------------------|--|
| <i>Reading, Neutral Condition</i> | | | |
| Low class (D below +.99) | 8 | 25 | 17 |
| Middle class (D +1.0 to 3.99) | 83 | 17 | 83 |
| High class (D 4.0 up) | 8 | 58 | 0 |
| <i>Arithmetic, Neutral Condition</i> | | | |
| Low class (D below +.99) | 25 | 17 | 17 |
| Middle class (D +1.0 to +3.99) | 58 | 33 | 33 |
| High class (D +4.0 up) | 17 | 50 | 50 |

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|---|-------------|
| <i>Reading, Neutral Condition</i> | |
| Success group versus failure group | $P = < .01$ |
| Success group versus differential group | $P = .52$ |
| Failure group versus differential group | $P = < .01$ |
| <i>Arithmetic, Neutral Condition</i> | |
| Success group versus failure group | $P = .23$ |
| Success group versus differential group | $P = .23$ |
| Failure group versus differential group | $P = 1.00$ |

Table 3 presents as a simple indication of scatter the percentages of subjects whose discrepancies fall in each of three classes (shown by vertical lines in Figure 1): values from minus 5.0 to plus 0.99; from plus 1.0 to plus 3.99; and from plus 4.0 up. Results for the reading material show that, whereas of the failure subjects the majority tend to score in the highest discrepancy class, an appreciable number also fall in the other two classes. In the success and

differential groups, on the other hand, by far the largest number of subjects have discrepancy scores which place them in the middle class. The chi-square criterion for indicating probabilities of association between the groups shows that, whereas the success and differential groups probably do not differ in other than chance terms, the failure group is reliably different from both.

In the results from the arithmetic task the same trends appear with somewhat less statistical reliability. It may be remembered that the experimental groups do not show the wide divergence in success attitudes and achievement toward arithmetic that they do toward reading. The outstandingly successful past experiences of the success group have been with reading, arithmetic following ordinarily in second place. In the failure group, however, reading has always been a clear failure experience, with arithmetic regarded in some cases as the "best" of a group of ungratifying subject achievements. It has further appeared that arithmetic has received a relative "success" aura for some of the failure subjects, even when their actual achievement in it is markedly poorer than that of some of the success subjects for whom arithmetic is relatively a "failure" subject. The experimental groups are, therefore, less widely divergent in their attitudes toward arithmetic than in those toward reading, and hence the lesser reliability of the level of aspiration discrepancies in arithmetic does not vitiate the previous findings indicating success attitudes as a factor in the level of aspiration response.

Table 4 presents critical ratios (D/SD) for differences between the groups in mean discrepancy and variability (SD) of discrepancy.³ While there is some evidence for reliable differences between the groups in gross size of the discrepancy score (with failure experience always associated with the larger discrepancy), the differences between groups with respect to *variability* of discrepancy are more outstanding. Subjects having in common the past experience of success show similar discrepancy scores, whereas the scores of the failure-group subjects are widely scattered and dissimilar.

³ These critical ratios are calculated for use with Fisher's t test for the determination of the significance of the differences in small groups (4). With the number of subjects here employed, a P value of .01 (considered very significant) requires a critical ratio of 2.81; a P value of .05 (considered significant) a critical ratio of 2.07; a P value of .10 (not clearly significant) a critical ratio of 1.71.

TABLE 4

CRITICAL RATIOS OF DIFFERENCES BETWEEN DISCREPANCIES AND BETWEEN STANDARD DEVIATIONS OF DISCREPANCIES OBTAINED FROM GROUPS DIFFERING IN PAST EXPERIENCE OF SUCCESS AND FAILURE

| | | FAILURE GROUP | MINUS | SUCCESS GROUP | DIFF. GROUP | MINUS | SUCCESS GROUP | FAILURE GROUP | MINUS | DIFF. GROUP |
|-------------------------------------|-------------------------|------------------|----------|------------------|----------------|----------|------------------|------------------|----------|----------------|
| | NO. OF EACH GROUP | M | O | M | O | M | O | M | O | |
| | | Discrep. | Discrep. | Discrep. | Discrep. | Discrep. | Discrep. | Discrep. | Discrep. | |
| Reading, neutral condition | 11 or 12 * | 2.18 | 4.27 | 1.10 | 2.46 | 1.93 | 3.75 | | | |
| Arithmetic, neutral condition | 12 | 1.69 | 3.23 | 1.40 | 2.17 | 0.72 | 1.67 | | | |

* Success Group N = 11; cf. Table 2.

3. Differences in Discrepancy Between Conditions

All subjects were given both types of materials first under neutral conditions; thereafter half of each of the three groups was given the reading material under success and the arithmetic under failure conditions; the other half had the arithmetic under success, the reading under failure conditions. All subjects thus had both materials under neutral conditions, with subsequent success on one, failure on the other. Table 2, read in the vertical direction, gives comparisons of the changes occurring in discrepancy scores with success and failure stimulation as contrasted with the base line of discrepancies under neutral conditions.

With two exceptions out of the 12 possible comparisons, an increase occurred in the mean size and variability of the group distributions of discrepancies with failure stimulation. Likewise with but two exceptions out of 12 comparisons, induced success is associated with a lowered discrepancy and a lowered variability of the discrepancy.

Distributions for the three groups and two materials combined are shown in Figure 2. These indicate the results after brief experimentally induced success and failure in subjects of diverse past experience. The neutral discrepancy here plotted is for that material (either arithmetic or reading) in which the child later received

Three groups and two tasks combined.

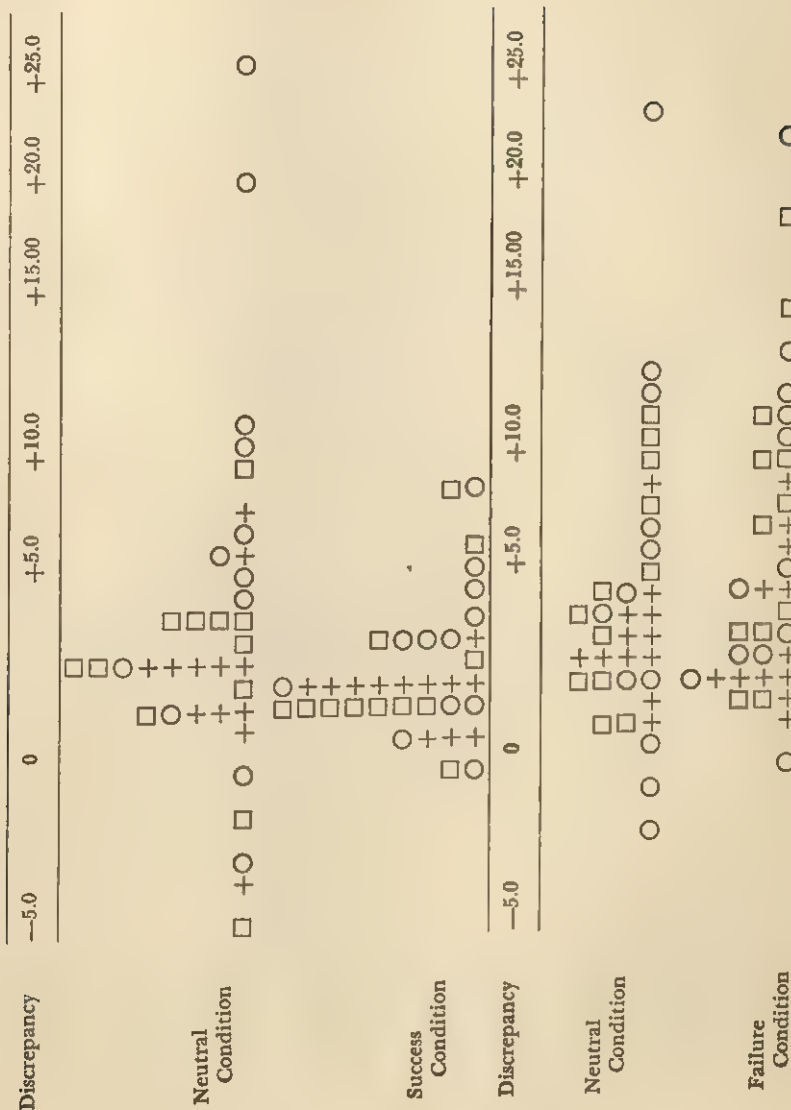


FIGURE 2. Comparison of conditions: discrepancy scores under conditions of experimentally induced success and failure. Three groups and two tasks combined.

the given experimental stimulation (i.e., in the neutral-success distribution the neutral discrepancies are plotted only for those subjects who later received success stimulation in the same material). The distributions show the same effects on the discrepancy and its variability for the condition of brief success-failure that have already been reported for the condition of long-continued past success-failure. In addition, the figure shows that those subjects whose discrepancies are negative tend, when exposed briefly to either success or failure, to approach a positive discrepancy value. All except one of those in the low discrepancy class (6 in the success, 7 in the failure comparison) increase their discrepancies with failure in the now expected direction, but also increase with success in opposition to the total group result. In the neutral-success comparison this contrary effect in the low-class subjects tends to raise the mean under the success condition toward that of the neutral, while the amount of variability is, because of their deviational behavior, less for the group as a whole. In the neutral-failure comparison the range is narrowed because of these deviations, while the means are spread wider apart in the expected directions.

The deviational discrepancy scores of the low-class subjects are of interest because other evidence to be presented later suggests that the three classes of discrepancy (called here high, middle and low) do not represent measures of a similar reaction. It is questioned whether they should be considered as varying along a continuous distribution of size. Throwing them into one distribution, as has been done here in the calculation of the means and standard deviations shows the effects of success and failure on the most prevalent form of reaction, but minimizes or completely obscures effects on other forms of level of aspiration.

Because of the small size of the groups on which the present comparisons are made, and because of the individual differences in reaction, many of the neutral-success and neutral-failure differences in size and variability do not reach statistical significance. Out of 24 such comparisons, however, 20 are in the expected direction. Hence it seems warranted to conclude at least tentatively that present experience of induced success or failure has in general the same effect as a similar, long-continued past experience: viz., increase of discrepancy and its variability under failure, and decrease of both under success.

SECONDARY MEASURES OF THE LEVEL OF ASPIRATION

1. *Flexibility, Responsiveness and Negative Discrepancy*

In addition to the discrepancy score there are three other measures of the level of aspiration which may serve a useful function in a description and delimitation of level of aspiration. These are fully described in another paper (20); here a brief definition will serve.

a. FLEXIBILITY. The level of aspiration may be shifted from its placement on the preceding trial a total of 19 times in 20 trials. The measure of flexibility is the percentage of shift. It is the quotient derived when the number of shifts, regardless of their amounts or direction, is divided by 19.

b. RESPONSIVENESS. When the performance score is reported as better than that in the just previous trial, the subject may follow the reported improvement responsively with a *raised* level of aspiration, he may maintain the *same* level, or he may *lower* the level. The responsiveness measure is the total number of times that the level of aspiration follows the immediately preceding performance in upward or downward directions, plus the number of times that the level of aspiration remains unchanged when the performance is unchanged. It measures the extent to which an individual is influenced by his immediately preceding performance score in the setting of his aspiration level.

c. NEGATIVE DISCREPANCY. The number of times, out of a possible 20, that the subject sets a level of aspiration equal to or below the immediately preceding performance score as reported offers a third measure of his aspiration behavior.

Table 5 shows the mean values of the three secondary measures for the experimental groups in reading and arithmetic tasks performed under neutral conditions, together with the corresponding discrepancy values. The values for all three measures prove to be nearly similar for the three groups and in this respect contrast with the discrepancy values which differentiate the groups. The data for the success and failure conditions, not presented in the table, like-

wise show no group differences, except again in discrepancy. Evidently the experimental groups, selected on the basis of past experiences of success and failure, do not set levels of aspiration which are on the average distinguishable in terms of these three secondary measures.

TABLE 5

MEASURES OF LEVEL OF ASPIRATION FOR GROUPS CLASSIFIED ACCORDING TO PAST EXPERIENCE OF SUCCESS AND FAILURE

| | SUCCESS GROUP | | FAILURE GROUP | | DIFFERENTIAL GROUP | |
|---------------------------------------|----------------|-----------------|----------------|-----------------|--------------------|-----------------|
| | <i>Read. N</i> | <i>Arith. N</i> | <i>Read. N</i> | <i>Arith. N</i> | <i>Read. N</i> | <i>Arith. N</i> |
| Flexibility | .60 | .70 | .51 | .68 | .55 | .61 |
| Responsiveness | 10.58 | 10.50 | 8.17 | 10.67 | 8.25 | 9.25 |
| No. of negative or zero discrepancies | 5.83 | 4.92 | 4.75 | 4.75 | 4.83 | 5.00 |
| Discrepancy | 1.92 | 2.17 | 5.50 | 6.71 | 1.88 | 1.54 |

It would be premature to take this finding as evidence that patterning of aspiration-level behavior in terms of discrepancy and the secondary measures does not occur. Two lines of evidence suggested to the writer that such patterning exists, but that the success-failure groupings do not provide the natural *aspiration-level* groupings which would allow it to appear. First, observation of the behavior of individual subjects during the experiment suggested that the flexibility and responsiveness of the aspiration level varies with the size of the discrepancy, but not in a clear one-to-one fashion. Individual subjects with low positive discrepancy scores appeared to show more flexibility and responsiveness than children having either negative or high positive discrepancies. Secondly, the failure group is much more variable in discrepancy size than the success group, which is remarkably homogeneous in this respect (see Figure 1). If it is true that the size of the discrepancy is correlated with the size of the secondary measures, then averages of scores on these measures for the heterogeneous failure group might resemble closely averages for the homogeneous success group without bringing to light individual patterns of response which might occur in both groups. The variability of the secondary measures is in fact much greater for the failure than for the success group, a fact

which in itself indicates that the failure group is not as homogeneous an *aspiration level* grouping as is the success group. A regrouping which breaks up the heterogeneous failure and differential groups into natural size-of-discrepancy groups is required.

2. Criteria for the Size-of-Discrepancy Grouping

In order to test the hypothesis that the grouping of subjects in terms of past experience of success and failure is less likely to reveal meaningful patterns of aspiration level response than is a grouping in terms of size of discrepancy, the 36 subjects were regrouped on the basis of the most characteristically employed discrepancy score. In the interest of homogeneity in the new groups rigid criteria were established in terms of minimum and maximum discrepancy scores, and the consistency of the discrepancy in successive performances.

The criteria finally adopted were as follows:

a. Each subject accepted for one of the three groups was required to show a reasonable consistency in the placement of the level of aspiration in the 20 trials with each of the two materials.

b. Each subject was required to meet one of the three following specifications with respect to size of discrepancy:

(1) For the *low-positive-discrepancy* group, the median neutral discrepancy in the reading series must fall between $+0.5$ and $+2.0$, inclusive; in the arithmetic series between $+1.5$ and $+4.5$, inclusive; the arithmetic discrepancy must be the same or larger than that in reading. The average discrepancy for the two materials must fall between $+1.2$ and $+3.3$.

(2) For the *high-positive-discrepancy* group the discrepancy in neutral reading series must be $+2.5$ or more, in the arithmetic series $+3.5$ or more. The average of the two discrepancies must be at least $+5.5$.

(3) For the *negative-discrepancy* group, the discrepancy with one material must be $+0.5$ or less, with the other $+2.0$ or less; the average with the two materials must be $+1.0$ or less. As a consequence of the rigidity of selection 11 subjects who did not conform to the specifications remain unclassified. The majority of these 11 subjects conform to one pattern of aspiration-level behavior on the reading material and to another on the arithmetic. By the earlier

TABLE 6

MEASURES OF LEVEL OF ASPIRATION FOR GROUPS CLASSIFIED ACCORDING TO SIZE OF DISCREPANCY: MEANS OF SCORES FOR READING
AND ARITHMETIC, NEUTRAL CONDITION

| | LOW-POSITIVE DISCREPANCY GROUP $N = 9$ | | HIGH-POSITIVE DISCREPANCY GROUP $N = 9$ | | NEGATIVE DISCREPANCY GROUP $N = 7$ | | MIXED GROUP $N = 11$ | |
|----------------------------------|--|------------|---|------------|--|------------|----------------------------|------------|
| | Reading N | Arith. N | Reading N | Arith. N | Reading N | Arith. N | Reading N | Arith. N |
| Flexibility | .68 | .77 | .28 | .43 | .58 | .69 | .65 | .74 |
| Responsiveness | 12.56 | 12.67 | 4.78 | 6.67 | 9.71 | 10.57 | 9.09 | 12.09 |
| Number of negative discrepancies | 4.44 | 2.22 | .56 | .89 | 11.29 | 13.86 | 5.55 | 4.64 |
| Discrepancy | 1.39 | 2.72 | 8.00 | 11.61 | .21 | -2.07 | 2.32 | 4.23 |

method of classification (Table 3) which was based on measures taken separately for the two tasks, rather than as in the present case on discrepancies which are similar for the two tasks, the 11 subjects fell naturally into one or other of the three prescribed groups. In the present classification they form a fourth, "mixed" group.

Table 6 presents the means of the discrepancy scores and the three secondary measures of aspiration level for the four new size-of-discrepancy groups: the *low-positive*, *high-positive*, *negative*, and *mixed*. The critical ratios of the mean group differences in the reading series, neutral condition, are given in Table 7.⁴ Whereas

TABLE 7
MEASURES OF LEVEL OF ASPIRATION FOR GROUPS CLASSIFIED
ACCORDING TO SIZE OF DISCREPANCY

CRITICAL RATIOS OF SCORES FOR READING, NEUTRAL CONDITION

| | <i>Low-Positive</i> Minus <i>High-Positive</i> Groups | <i>Negative</i> Minus <i>High-Positive</i> Groups | <i>Low-Positive</i> Minus <i>Negative</i> Groups |
|----------------------------------|--|--|---|
| Flexibility | +4.50 | +3.05 | +1.28 |
| Responsiveness | +5.40 | +3.10 | +2.02 |
| Number of negative discrepancies | +3.18 | +6.79 | -3.49 |
| Discrepancy | -3.55 | -3.97 | +1.74 |

the original grouping of the subjects in terms of past experience of success and failure discloses differences in discrepancy but in no other attributes of level of aspiration, the regrouping in terms of size of discrepancy yields a series of significant differences. The regrouping procedure has placed individuals together who resemble one another and who differ from those of other groups in terms of (1) discrepancy size, (2) flexibility, and (3) responsiveness of the aspiration level.⁵ This finding suggests that the members of each of these groups may have in common also some more general characteristics

⁴ The arithmetic scores give essentially the same results.

⁵ The negative discrepancy measure is of course not independent of the basis of grouping, median discrepancy size. Reasons for the use of this measure, and also for the delimitation of the *low-positive* from the *negative* discrepancy group in spite of the relatively low critical ratios on the secondary measures, will be given in the next section.

which produce in them common modes of expressing striving. The consideration of one of these possible factors is the next problem.

3. *Significance of the Aspiration Level to the Individual*

Gould (10) has shown by an extensive individual interview technique that the stated level of aspiration is differently employed by different individuals. For most people, she concludes, the levels of aspiration function as protectors of the ego, but the form that the protection takes may vary. Her data suggest that there is not a clear linear relation between size of discrepancy and motivational factors, such as fear of failure. The present experiment has shown that there is a tendency for the discrepancy to be large in individuals who have experienced continuous failure in connection with the experimental task, but that more striking is the wide diversification in the discrepancy scores of these individuals. These subjects, being highly involved in the work, probably all fear new failure; yet their reactions to the aspiration situation are of several different types in terms of the discrepancy and secondary scores. This fact suggests that different individuals are probably using the aspiration level in different ways, each of which may seem to the individual using it most satisfactory in protection of the ego.

Since the subjects have been regrouped in terms of characteristic size of discrepancy, there is now opportunity to examine these groups to see if the group members resemble one another in predominant type of use or significance of the aspiration level. Those subjects not showing consistent discrepancy scores ("mixed" group) have been separated from the others, so that the three main groups represent relatively pure cultures of the characteristic discrepancy size employed in this situation. That is, if discrepancy size is related to the individual's perception of the aspiration level as it affects the ego, then this relation should appear more clearly because those subjects who tried one thing on one trial and another on the succeeding trial have been eliminated.

a. *The low-positive-discrepancy group* consists of seven success and two differential subjects. The levels of aspiration of these nine subjects show a small positive discrepancy. In the individual cases the discrepancy measure is usually smaller after reported success

(in 75 per cent of the cases), larger after reported failure (in 78 per cent). The level of aspiration tends in these nine to be responsive to the preceding performance scores, to be flexible, and to show a moderate number of negative discrepancies. In addition, these subjects show marked goal directedness toward the stated level of aspiration under all the experimental conditions employed.⁶ They take account in a practical way of their previous good and bad performances as reported, and show little conflict over the placement of their aspiration level. They react rather strongly to success and failure in terms of general behavior, but they do not change the level of aspiration a great deal under such conditions. They appear to believe that they are performing near their favorable maximum under neutral conditions. They sometimes increase effort under success or failure, but they do not react with so large a change in the discrepancy score as the other groups.

These characteristics seem consistent when viewed as a pattern of response. The levels of aspiration of this group might be described as closely tied to a (for them) satisfactory reality, with a goal for achievement usually just ahead of present accomplishment but easily modified in response to a change in the reported performance. Accomplishment appears here to be viewed as a whole; modification of the aspiration level is not made blindly, following the report of specific performance. The moderate number of negative discrepancies reflects the satisfaction of these children with their own best performances. They are comfortably content at times to place a level of aspiration at the same point as a previous performance, or even at a lower level.

⁶ Goal directedness is here used to refer to behavior indicating that the subject is actually trying to achieve the score which he has set as his level of aspiration. Nearly all the subjects show behavior directed toward some goal, but frequently this is not the goal stated to the experimenter. Goal directedness toward the stated level of aspiration was considered to be demonstrated by such remarks as the following: "I'm going to make that 30 if it's the last thing I do." "Same goal; I'm just going to try and get that 31; that's my whole record till I get it." "I've been silly, now I'm going to work; watch me get 10." "This time I'm going to make 10 if I have to kill myself." "I'll get it sooner or later; I get what I want, that's me." After failing to make the level of aspiration: "Ooh, I lost." "Almost made it." "Gotta make it now." After the experimenter praises the performance during the success condition: "Of course I'd be much more pleased if I made what I said I was going to." After achievement of the level of aspiration: "Hurray, I get my man!" "What'd I say!" "Ooh, I made it!" "Gee, I made it, hot dogs!"

b. *The high-positive-discrepancy group* consists of one success subject, five failure subjects and three differential subjects. All nine show a high positive discrepancy under neutral conditions which decreases under experimentally induced success (discrepancy is lower with success in 100 per cent of the cases) to a level near that of the members of the group described above, and increases with experimentally induced failure (in 75 per cent). Their levels of aspiration under neutral conditions are relatively unresponsive to the performance, inflexible, and show very few negative discrepancies. Frequently the children of this group set initially a level of aspiration which is far removed from their performance scores; and they maintain this level almost rigidly, even if their performance never approaches it in excellence. If the performance should approach the level of aspiration, the latter is immediately raised so that a large discrepancy continues to be present. These subjects seem to be inwardly compelled to do so, as if they never felt that they were doing well enough. Under neutral conditions they may or may not show goal directedness toward the level aspired to, although there is invariably strong effort shown on the work.⁷ Under experimentally induced success, the performance becomes markedly goal-directed. If the goal is achieved, however, there is no such satisfaction and relaxation of tension as is characteristic of the children in the low-positive-discrepancy group. Their attitudes and whole bodily orientation seem to change with experimentally induced success as if a load of tension had been removed. Under the failure condition sluggish, apathetic behavior sometimes appears, as if the limit of tolerance for the assimilation of failure had been reached and escape must be sought by "going out of the field." In this case the level of aspiration is generally lowered and successive expressions fail to show expected consistency.

c. *The negative-discrepancy group* consists of three success, two failure, and two differential subjects. The basis for grouping these seven children together, and the unique feature of their level of aspiration behavior, is the predominantly negative discrepancy under neutral conditions. Contrary to the usual behavior of this measure, the discrepancy is for these subjects increased (in 71 per

⁷ In this they are not unique; nearly all of the 36 subjects, regardless of classification, appeared to exert themselves strongly on all of the experimental tasks.

cent of the cases) under experimentally induced success, and thus usually becomes a positive value. With experimentally induced failure the discrepancy is also increased (in 86 per cent of the cases), and is then of a higher value than that shown with success. In responsiveness and flexibility the members of this group resemble the low-positive-discrepancy children, but the end toward which this behavior is directed may be seen to differ: in the low-positive group the subjects are responsive and flexible in terms of a stated goal which is ahead of their performance; in the negative discrepancy group the responsiveness and flexibility are directed toward avoiding the failure of a performance *worse* than that prescribed by the level of aspiration.⁸ Subjects of the negative-discrepancy group take only indirect account of their previous good and bad performance scores in the placement of the level of aspiration. Their aim is to be always on the safe side—an aim which apparently seems to them most probable of achievement when the level of aspiration is placed just equal to or lower than the performance immediately previous. There is in addition a marked conflict over the statement to the experimenter of the level of aspiration; sometimes the child seems to wish to set a high goal and yet be fearful of non-achievement of it. In such cases the conflict appears to have been resolved by placing the stated goal *below* the performance. After brief incidental successes during the neutral session and under conditions of experimentally induced success these subjects appear able to tolerate a positive discrepancy.⁹ The effect of brief incidental failures is to

⁸ This apparently coincides with Hoppe's (11) observation that feelings of failure result from non-attainment of the [true] level of aspiration, in spite of the fact that the stated level of aspiration in these cases is obviously not the performance they hope to achieve. ("If I say 80, maybe I can make 61 again.") It seems possible, however, that this observation of Hoppe's is not wholly applicable to many of the experimental situations used by American investigators (5; 10; 20). In the present experiment, for example, the individual sees his task as made up of 20 short discrete trials rather than a single task involving but one placement of the level of aspiration, as was usually the case with Hoppe's subjects. Thus, in the present experiment, the non-attainment of the level of aspiration of the strongly goal-directed low-positive-group subjects did not appear to be attended by severe feelings of failure as long as there existed the anticipation of such attainment sooner or later. But for the negative-discrepancy subjects a single performance worse than the level of aspiration clearly produced failure experience.

⁹ In extreme cases the initially negative discrepancy becomes progressively smaller during the success session, reaches zero, and finally goes into a small positive value toward the end of the 20 trials.

drive the level of aspiration even lower than usual, producing a still larger negative discrepancy than that occurring under neutral conditions. With more prolonged failure, as during the experimentally induced failure sessions, the discrepancy becomes fairly large in the positive direction. It may be that in this situation the experimenter's disparaging comments about the inferiority of the performance in comparison with that of other children increases the strength of the instigation to set a high level of aspiration, thus facilitating the resolution of the conflict in this direction.¹⁰

d. *The mixed group* consists of one success, five differential and five failure subjects. Nine of the eleven children fail to meet the size-of-discrepancy criteria for the three groups just described. The two exceptions, while they meet the size-of-discrepancy criteria, fail to be included in the three regular groups because they show extreme inconsistency in aspiration placements on both of the experimental materials. Two of the nine also clearly lack consistency throughout the 20 trials of one series. Their median discrepancy values can, therefore, not be regarded as representative measures of their stated goals in relation to their performances. Four of the five failure subjects within the mixed group resemble the negative discrepancy children in their behavior with one material, the high positive group with the other. The three other children of the mixed group include one success and two differential subjects. These resemble the low positive group in their response on one material and the high positive group on the other.

DISCUSSION

It has been shown that self-confident, successful children react to the level of aspiration situation in a similar way, whereas unsuccessful children, lacking in confidence, may adopt one of a number of different behavior techniques in this situation. Furthermore, experimentally induced success brings the reactions of all subjects in regard to level of aspiration into a more homogeneous distribution than do the neutral conditions of stimulation.

¹⁰ The term instigation is used here as defined by the authors of *Frustration and aggression* (3, 3): "An instigator is some antecedent condition of which the predicted response is the consequence."

Gould (10) has suggested the possibility that the preponderantly positive discrepancy scores obtained in experiments on level of aspiration are related to cultural forces which influence individuals (1) to expect, and (2) to be obliged to improve their performance more or less continuously. These forces might be expected to be especially powerful in children, who are typically in a state of learning and improvement, especially in the school situation where such improvement is made a requirement. The culture dictates a reward for individuals who meet the prescribed upward trend in performance and chastisement for those who do not. Furthermore, no ordinarily obvious and approved methods of gratification are provided for the individual who either fails to do consistently better or who consistently falls below the social norm for performance on a given task.¹¹

There are, however, certain recourses for such an individual. (1) He may make it clear that, although failing, he is continually *trying* to achieve at a point above his usual performance and approaching the level he perceives as the "good." Thus he may derive substitute gratification through cultural commendation of his *effort*. (2) On the other hand, he may refuse to acknowledge or he may discount the force of the pressures toward improvement. He will then depreciate his own achievement and striving, by expressing goals *below* his own actual accomplishment. When he then does *better* than this behavior leads the observer to predict, he will have achieved a kind of success.¹² These chiefly, with a few other less common forms of reaction, appear to account for the relatively larger observed variability of the discrepancy in subjects who have in the past experienced not success but failure at the activity now used as the experimental task.

¹¹ This again presupposes ego-involvement in the task. There are many life activities in which an individual does not experience failure if he falls below the social norm of achievement.

¹² There are many other techniques for the avoidance of the effects on self-esteem of recurrent failure. Various types of evasions may occur including, in addition to the above sample, "going out of the field," compensations, rationalizations, and the like. In the experimental situation of this investigation, the subjects were required to finish a given task, and thus no physical "going out of the field" was permitted, although its psychic equivalent was sometimes observed. Immediate compensations were likewise not possible because of the restriction of behavior to the given task; rationalizations sometimes were made but these did not appear to be especially potent in the reduction of feelings of failure.

Chapman and Volkmann (2) have recently linked the level of aspiration to Sherif's hypothesis that the formation of a judgment is affected by the frame of reference within which the judgment is executed (19). When the subject lacks personal experience with a task, the placement of his level of aspiration is found to be related to a knowledge of the achievement on the task of groups with reference to which he can assess his ability or status. The effect on the level of aspiration of this knowledge decreases rapidly as the individual acquires personal experience with the new task.

In the present study the subject entered the experimental situation with definite knowledge of his ability, relative to that of his classmates, at tasks closely similar to those used for the determination of the levels of aspiration. Since, furthermore, his relative status in this respect had been roughly constant for several years, his attitudes of success or failure with regard to his position on these interiorized social norms may be presumed to have been fairly well set. This condition suggests a reason for the large discrepancy immediately shown, and consistently maintained, in many of the failure subjects. A failure subject has in the past generally performed at a level markedly below that of his fellow pupils on like tasks, and his lack of excellence has been frequently and often unpleasantly brought to his attention. The cultural pressure to conform and to excel has in all probability been exerted more strongly on him than on the children in the success group. The social forces long felt may be presumed in such cases to exert more effect on the statement of the aspiration than the objective datum of the single poor performance and the realistic anticipation of little improvement; therefore, the level of aspiration is placed high in relation to the performance by these children as an acknowledgment or cognizance of what good achievement is, and, possibly, for its incentive value in stimulating him to improve his own performance.

The cultural pressure to excel and to keep the performance improving, plus the cognizance of the position of the self relative to social norms, seem to account for most of the results obtained in the present investigation. The obvious differences, however, in the function of the level of aspiration in the experience of the individual, particularly as exemplified in the contrast between the behavior of the subjects of the negative-discrepancy group and

the low- and high-positive-discrepancy groups make necessary another concept.

Hoppe (11) originally conceived of the level of aspiration as a true goal or level of striving. The overt statement of the level, or the behaviors from which its specific position may be deduced, may be regarded as somewhat similar to anticipatory goal responses (12), since the statement or the behaviors are fractional representations or components of the goal response, in this case actual overt achievement of the stated goal.¹³ The goal response here is conceived as the statement or other equivalent behavioral manifestation of the subject: "Oh boy, I made it, 50 seconds!" when he is told his performance score by the experimenter. One fractional component of that goal response, displaced forward in the sequence, is the previous statement: "I'll try to make 50 seconds."

Gould's work (10), however, has shown that when the verbal statement of the subject is alone considered as expressing the level of aspiration (which has been the case in this and other recent investigations), the level of aspiration so expressed may not in all cases be taken as representative of the actual goal or level of striving. Frequently the verbalized expression appears to act as a protective response designed to establish the individual and to shield him from failure. In such cases the reaction operates as a goal response (12), since the statement of the level of aspiration in itself may be presumed to provide a certain gratification to the individual and hence to provide reinforcement of the response tendency.

This concept is exemplified by the following situation in the present experiment. Floyd, a subject in the failure group, who consistently set very high levels of aspiration, found himself doing each example in poorer time than the one before. Each level of aspiration was, however, set higher than the previous one. After several such trials he remarked, with snickers covertly directed at the experimenter, "The problems are getting harder [rationalization] and I'm setting my goals higher!" This behavior might also be conceived as a substitute response for actual achievement and might, therefore, be expected to reduce instigation and hence effort, for the actual good achievement.

¹³ This concept has previously been used chiefly on a simple motor level, and the analogy here to behavior which is on an ideational level should not be pushed too far.

Following the line of these concepts, it may be postulated that, in individuals of average endowment, the normal, adjustive reaction to cultural demands and pressures in our competitive society somewhat resembles the following sequence. There is a placement of goals a short distance above the observed performance, followed by activity strongly directed toward these goals.¹⁴ If a goal is attained, a new one is set slightly higher, and the process repeated. If, on the other hand, the goal is not attained after a reasonable length of time, its position will be adjusted downward, and the activity directed toward the new goal. In this case the statement of the goal position is regarded as similar to the anticipatory goal response. The social norms of performance obviously enter the picture as well. If this normal sequence is to be carried out, the individual must either (1) be ignorant of the usual performances of others in dealing with the task in question, (2) be aware of such norms but indifferent to them, (3) regard his performance as equally good as or better than the performances of those to whom he may compare himself. In the experiment here reported, the first two possibilities did not exist in fact, since the children were well aware of their standing relative to that of their classmates in the school subjects used, and few children (only those rated relatively low in ego-involvement) were indifferent to their position in such respects.

The crucial factor then remaining is the consciousness of performance which is equal to or superior to the perceived social norms. (This is the experimentally manipulated variable of academic success, represented in the success, failure, and differential groups.) If the individual has in the past perceived himself in a sufficiently favorable position relative to the social norm to be able to carry out this sequence, and if, furthermore, he has frequently achieved his goal in competitive situations and, therefore, received gratification and reinforcement of the response sequence, then the sequence should be self-perpetuating as long as the appraisal of the self relative to others and the improvement in performance which is required for achievement of the goal, continue along the same course. If, however, the individual becomes unable to view his performance in a favorable light relative to that of others, or ceases to receive regular reinforcement from attainment of his goals, then a change in

¹⁴ Since this argument is for purposes of exemplification of the level of aspiration situation in which a stated remote goal was not possible, only immediate goals are here considered.

the sequence should be expected. The statement of the goal can no longer represent an anticipatory goal response, since instigation to this particular goal response (achievement of the stated goal), and hence also to the anticipatory goal response (statement of the goal), will be reduced in strength or abolished through non-reinforcement. Furthermore, if the individual perceives himself as much below the average (or the "good") in performance, the achievement of a goal only slightly above his performance will not reward him as much as if this goal were above the average as well as above his performance. He is, however, required to continue to make statements of his goals.

The individual, faced with this unpleasant situation, may flounder and behave in a trial-and-error fashion, or he may adopt a form of response which is less gratifying than the sequence originally sketched, but which provides some gratification of a substitute order. This consists in the utilization of the *statement* of the goal as a gratifying agent in itself; i.e., the verbal statement of the level of aspiration becomes more akin to a goal response than to an anticipatory goal response. He may set a high goal and receive gratification in social approval for his recognition of the social norm and his evident effort to reach it (while he has actually little or no expectation of reaching it), or he may set his goal low, in overt denial of the social norm, and derive gratification from over-reaching it. Which of these, or other, responses he will follow depends on the situation, the make-up of the individual, and his past experiences with similar situations.

While it is clear that no simple formulation will describe completely the complicated state of affairs leading to the statement of a given level of aspiration, the hypothesis given above will account for many of the results obtained in this and other experiments. No results so far obtained in the field of experimentation, if they are sufficiently complete to be fitted to this formulation, are incompatible with it. In the present experiment evidence for its relevance comes from the comparison of numbers of subjects from the original success and failure groups¹⁵ (groups differing in academic security, and presumably in past experience of reward for good achieve-

¹⁵ Since the differential group was composed of individuals having successful past experiences on one experimental material and unsuccessful past experiences on the other, its analysis in terms of academic security presents difficulties, and will not be attempted here.

ment) who fall in one or another of the size-of-discrepancy classifications. Table 8 presents the comparison. The chi-square test indicates that there is less than one chance in 100 that differences between the groupings can be attributed to chance. The low-positive-discrepancy group (who show the "normal, adjustive" reaction of the hypothesis) contains 7 subjects from the success group and none from the failure. In terms of the hypothesis this means that no subjects who had experienced long-continued school failure with its resultant non-reward for achievement, were able in the level-of-aspiration situation to employ consistently the "normal" pattern of response. The high-positive-discrepancy group contains one success-

TABLE 8

NUMBER OF SUBJECTS FROM THE ACADEMIC SUCCESS-FAILURE GROUPING WHO FALL IN EACH OF THE DISCREPANCY-SIZE CATEGORIES

| <i>Discrepancy-size Category</i> | <i>Success Group</i> | <i>Failure Group</i> |
|----------------------------------|----------------------|----------------------|
| Low-positive | 7 | 0 |
| High-positive | 1 | 5 |
| Negative | 3 | 2 |
| Mixed | 1 | 5 |

$$X^2=12.53, n=3$$

$$P=<.01$$

group subject to five failure-group subjects. This group is made up of individuals who, according to the hypothesis, consistently use a form of substitute response since lack of academic security and reward has made the normal response untenable. Another form of substitute response may be the negative-discrepancy pattern. Here there appears in our results no differentiation in terms of academic success.¹⁶ The mixed group is probably made up of individuals who employ other forms of substitute or ambivalent response, since the members of this group were excluded from the others by the inconsistency and heterogeneity of their response patterns. Five failure subjects to one success fall in this group.

Additional evidence for the adequacy of the hypothesis comes from comparison of the group dispersions in discrepancy scores of

¹⁶ This group appears to be more strongly influenced by a general personality factor than by academic security. This and other similar relationships are discussed in another paper (18).

the original success, failure, and differential groups. According to the hypothesis, a group of individuals who have all consistently failed in the past on the subject matter used for experimental tasks, should show a greater dispersion (variability) of discrepancy scores than a group all of whose members have consistently experienced success. The reason for this, according to the theory, is that failure will produce non-reinforcement of the normal adjustive aspiration response, and such non-reinforcement may evoke trial-and-error behavior, or one of the two identified forms of substitute behavior. Comparison of the dispersions of the success, failure, and differential groups (Figure 1, Table 2) shows that in this respect the hypothesis is borne out.

The data on experimentally induced success are also relevant here. Experimentally induced success provides social norms for the individual which induce him to believe that he has been and is performing much better than the average. He is given, furthermore, much gratification through praise for his good performance, and this circumstance might be expected to release him from the necessity of deriving substitute gratification from the statement of pseudo-goals (high-positive and negative forms of discrepancy). Hence it should result in a greater similarity (less dispersion) among the various subjects in level of aspiration response, since all should tend to approach the normal, adjustive form of reaction. Comparison of the variabilities in discrepancy under the condition of success with those for the same subjects under the neutral condition indicates that just this does occur (cf. Figure 2).

Similarly, experimentally induced failure provides a condition of insecurity for the subjects of all groups, since the experimenter specifically tells them that their performances are far below the level expected from them. The negative-discrepancy form of reaction is no longer tenable, as the experimenter refuses to accept as "good" the statements of these subjects that they are actually trying for their low goals. The subjects using the low-positive-discrepancy now lose their gratification and security and should in terms of the theory tend toward the high-positive form of reaction, as the negative-discrepancy is not possible. The high-positive-discrepancy subjects, losing even their substitute gratification from the statement of high goals, might be expected to try even higher

goals, or to revert to trial-and-error behavior. Close examination of Figure 2 will reveal that this predicted behavior occurs. The distribution of discrepancies is somewhat constricted for the failure condition as contrasted with the neutral, for the negative-discrepancy subjects have come up toward the center, and the highest positive-discrepancy subjects have come down toward the center. In the middle ranges, however, the discrepancies have all increased in size.

These group comparisons indicate in general that confidence in socially adequate achievement influences the pattern and course of the statements of level of aspiration. More complete evidence of the finding, derived from individual clinical study of the experimental subjects, is given in another paper (18).

Since few of the previous investigators in this field have considered in any detail the attitudes and anticipations of the individual experimental subject, there is not much evidence for or against the hypothesis from the work of others. Hoppe (11) analyzed his four subjects in terms of self-confidence and feeling of inferiority, but he does not clearly distinguish between traits deduced from observation in the level of aspiration situation, and those elsewhere observed. A high level of aspiration may, he says, be used as a compensation for inferior ability. This statement supports the present hypothesis. Lewin (16) has pointed out that the level of aspiration may be influenced by the demands or performance of others, and that feelings of superiority or inferiority may be developed from the frequency with which the level of aspiration is achieved. Such demands form the basis of social norms and the judgmental frame of reference, two concepts which are necessary to the present analysis.

Jucknat's work (14) is suggestive in relation to our hypothesis, although not directly comparable, as her results are given in terms of height of the level of aspiration rather than size of the discrepancy between level of aspiration and performance. Her 500 subjects were grouped according to whether their initial levels of aspiration were high, medium, or low, and then the school grades of these groups were examined. The good students were found to show a high initial level of aspiration, the average students a medium initial level, while the poor students set an initial level which was

either at the upper or the lower end of the scale. If we assume that the good students expected to do well in this task, their high levels of aspiration would represent only a moderate discrepancy. The poor students, on the other hand, expecting to perform poorly, set either a very high or a very low level. This result appears to be related to the findings of the present experiment which indicate large dispersion of discrepancy scores in the academic failure group, with high discrepancies, both positive and negative, rather than the low positive discrepancies which seem characteristic of the academically successful. The recent article of Anderson and Brandt (1) shows that children poor in achievement set levels of aspiration with much larger discrepancies than those of the children who are above average in achievement. Since the subjects of this experiment were given full knowledge of their standing relative to that of their classmates, the class average enters the situation as an "anchoring" factor, and the norms which in the present experiment have been regarded as socially interiorized and implicit become, in Anderson and Brandt's situation, thoroughly explicit.

Gould's excellent interview material on the function of the discrepancy score as it relates to the individual's self-esteem, and the relationship of the stated level of aspiration to the deeper strivings of the individual, brings to light much suggestive and illustrative data (10). Since the experimental tasks were chosen so as to vary widely in type and hence in meaning to each subject, these data cannot be related to those of the present experiment in any clear and unequivocal way. Her interviews, moreover, were carried on some time after the experimental work was completed, and the questioning was apparently directed toward the subjects' reactions and formulations of attitude for the six tasks considered as a whole, i.e., attitudes toward the experimental procedure in general. For this reason, attitudes of self-confidence and security toward specific types of tasks are not clearly brought out. There are cases in which an attitude of confidence or its opposite seems a pervasive, generalized attribute of the personality. But for the majority of individuals it is surely more appropriate to speak of self-confidences for various relatively specific situations. This point is recognized by Gould, who says: "Thus differing attitudes toward the tasks make what seem to be objectively one situation a number of different

situations, in the psychological sense, both for different individuals and for the same individual at different times" (p. 37). It is unfortunate that these different situations could not be considered separately in the interviewing.

The subjects of the present experiment were selected because of their serious involvement in the quality of their performance on the experimental tasks, and because they formed extreme groups within the dimension of specific *experienced* success-failure. Since a selection of subjects was made in these terms, it is believed that the results provide generalizations which are meaningful in terms of inner motivations and strivings to a greater extent than is the case in experiments which have selected subjects at random, without regard for individual attitudes and experiences. The levels of aspiration set by these children are obviously not always the "true" goals of achievement which they might set in a hypothetic, culturally uninhibited situation.¹⁷ These levels of aspiration do, however, represent "true" reactions, involving deep-lying motivational forces, to a situation in which the individual, because of his own experience and the effect of that experience within his personality, either finds it relatively simple to maintain his self-esteem or must fight to maintain it, using what weapons he can muster and what have proved useful to him in the past.

¹⁷ Gardner (7) has made an excellent analysis of the problem of "true" versus "stated" levels of aspiration.

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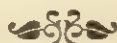
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ROGER G. BARKER

Success and Failure in the Classroom

The findings of the several investigations of the level-of-aspiration phenomenon are largely in agreement with one another. This consensus in the research data, however, is not reflected in educational practice as frequently as one might expect. What do the level-of-aspiration findings mean for educational method, organization, and evaluation? Professor Roger G. Barker offers a brief summary of the history and presents status of this concept and suggests educational conclusions based upon present knowledge. His recommendations need further specification for the various levels and areas of education, and the student may wish to consider what these specifications might be.



Of the numerous roles which the classroom teacher plays, that of dispenser of success and failure is undoubtedly the most impressive and worrisome to the pupils, and one of the most crucial for their present and future adjustment. It is also the role in which many teachers meet their severest conflicts; to fail John or not to fail him, whichever is done, frequently leaves feelings of guilt and anxiety. Clearly an understanding of the conditions and effects of success and failure would be of greatest value to teachers.

When does a child experience success? When does he experi-

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ence failure? In what ways do these experiences affect behavior? Do the schools make it possible for children to achieve a sufficient number of important success experiences? If not, what can be done about it? A small but very important body of verified knowledge is now available bearing upon these crucial questions. In this article only a very small segment of these data can be presented.

Professor Kurt Lewin, then at the University of Berlin, and his student Ferdinand Hoppe initiated an experimental approach to these questions in the late 1920's.¹ Hoppe first considered the fundamental problem of when a person experiences success and when failure. He presented his adult subjects with simple motor and intellectual tasks such as hanging sixteen rings upon as many hooks as they passed upon a rapidly moving belt, and solving puzzles. During each trial with the tasks, Hoppe observed the subjects secretly and after the completion of each trial he interviewed them thoroughly in an effort to find out the circumstances under which they experienced success and failure. One result was clearly apparent: the experiences of success and failure were unrelated to the actual achievements of the individual. One subject might experience success when he placed four rings on the hooks; another experienced failure when he placed fifteen correctly. In addition, for a particular person, the achievement experienced as success (or failure) continually changed; at one time a single ring correctly placed might give rise to an experience of success, while on a later occasion the placing of six rings would result in an experience of failure. These findings led Hoppe to a conclusion which seems very obvious once it is stated, but one that is so fundamental that it has very wide implications: *the occurrence of success and failure experiences is independent of actual achievement; it is determined, rather, by the goals, expectations and aspirations of the person at the time of the action.* These expected achievements Hoppe called *the level of aspiration*.

It is obvious that the level of aspiration is important for on it depends the occurrence of success and failure. Hoppe therefore directed his study to the effects of success and failure experiences on the level of aspiration. He found that after success the level of aspiration is usually raised (i.e. a new and higher goal is set after a lower one is achieved), and that after failure the level of aspiration

¹ Hoppe, F., "Erfolg und Misserfolg," *Psychol. Forsch.*, 1930, 14, 1-62.

is usually lowered (i.e. a new and lower goal is set after a high one has not been achieved). He found, in other words, that the level of aspiration shifts in such a way that, whatever the actual achievement of the person, the frequency of his success and failure experiences remains fairly constant. This means that the level of aspiration operates as a mental hygiene factor of great significance. It constitutes a sort of governor; it protects the person against continual failure on the one hand, and against easy achievements which do not give the feeling of success, on the other hand. This fact is behind the frequent observation that feelings of success accompany the process of achieving but disappear after attainment.

Sometimes, however, this mechanism is thrown out of balance and it fails to perform this protective function. In some cases, aspirations are maintained consistently above achievement. The individual is then subjected to continual failure with its disastrous consequences for adjustment and happiness. In other cases, aspirations are placed consistently below achievement with resulting lack of ambition, exaggerated caution, broken morale, cynicism, etc. In both instances very serious personal and social difficulties may develop. It is of the greatest importance, therefore, to determine why the level of aspiration does not function protectively for these persons.

Hoppe suggested that the level of aspiration is set as a compromise between two conflicting tendencies: (1) the desire to avoid the hurt accompanying failure, operating to force aspirations safely below the level of achievement; and (2) the desire to succeed at the highest possible level, operating to push goals above achievement levels. Subsequent investigations suggested that the latter tendency derives from social pressures to do what is most highly approved by society, irrespective of a realistic assessment of one's own capabilities. This conflict between fear of failure and desire to maintain goals that are socially approved results, usually, in a level of aspiration at or near the upper limit of one's ability range.

If this interpretation is correct, it would be expected that an increase in social pressure should alter the level of aspiration. This is, in fact, the case. Subsequent investigations have shown that pupils at the low end of the class achievement distribution aspire, on the average, above the level of their achievement possibilities (and therefore experience failure), while those at the upper end of the

achievement distribution set their aspirations below their level of achievement (and therefore experience success).²

Although the differences between aspiration and achievement are not great in a quantitative sense, they are psychologically very important. So far as success and failure are concerned, "a miss is as good as a mile." This difference in relation of aspiration to achievement appears to mean that the social pressures of the school situation may operate to throw off-balance the protective mechanism of the level of aspiration, thus subjecting children to exaggerated failure and success experiences.

It is not difficult to understand why these pressures arise in many schools. Social acceptability in an intimate group such as a school class requires a high degree of conformity to group standards in all sorts of public behavior. The first step in achieving such acceptability is to set goals in accordance with the group standards. In schools where evaluation is largely on the basis of academic achievements this means that poor students are forced, by the social pressure of the classroom, to set goals they cannot achieve or else to admit that they are mavericks; both are undesirable alternatives from a mental hygiene viewpoint. There is pressure upon bright students, also, to set their goals in conformity with the achievements of their room mates, rather than with their own.

Adults on the other hand are infrequently subjected to such pressures for long periods of time, for adults are able with considerable success to hide from others certain crucial symbols of their divergence from what is considered good or desirable (such as age, income, family background), and they are able to withdraw when the pressures become too great. Furthermore, achievement in most adult activities is not estimated with the precision that is attempted in many schools. Doctors, lawyers, plumbers and bakers can vary within a considerable range of effectiveness and no one is wiser; they are still adequate. This gives a fundamental security which is denied to pupils who are frequently and publicly evaluated, i.e., acclaimed

² Hilgard, E. R., E. M. Sait, and G. A. Magaret, "Level of aspiration as affected by relative standing in an experimental social group," *J. Exper. Psychol.*, 1940, 27, 411-421.

Anderson, H. H. and H. F. Brandt, "Study of motivation involving self-announced goals of fifth grade children and the concept of level of aspiration," *J. Soc. Psychol.*, 1939, 10, 209-232.

or humiliated by an authority from whose decisions there is no recourse and in a group from which there is no escape.

Middle-class pupils are unusually sensitive to these pressures. They are, in effect, subjected to the demands of a single dominating institution, for the family supports the demands of the school. This means that the pressures, the demands, the rewards, the punishments, the successes and the failures of the school are frequently of overwhelming importance to these children. No one with influence will question the righteousness of the school's verdicts or the correctness of its values. If the school is one in which the rewards are all centered about a very limited variety of achievements, for example academic achievements, the child who is relatively dull or uninterested in academic activities must experience continual failure. He will fail even though he is kind, or good looking, or has a sense of humor or has physical prowess, even though he is full of energy, graceful, courageous, friendly or with mechanical abilities. He will fail in school even though these behavior characteristics are very highly valued by many other institutions, until in adolescence he becomes sufficiently independent to establish affiliations with other groups which do reward non-academic achievement.

Compared with life outside school, many schools distribute success and failure in an extremely unrealistic way. Adults, for example, are inevitably influenced by various pressures, and rewarded according to conflicting values of a variety of institutions and social groups (family, vocation, clique, church, lodge, union, etc.), and these influences are likely to be of somewhat equal potency in their lives. This means that the adult can to some extent balance the failures in one region of his life by successes in other regions. The effects of vocational failures may be mitigated by successes in family and recreational relationships where quite different achievements are valued. In schools that emphasize academic achievement, this kind of balancing is impossible for middle-class children.

What is the consequence of the chronic failure and success that many schools enforce upon great numbers of pupils? We do not know a great amount from scientific experiment but what we do know is very suggestive.

Sears studied the level of aspiration of a group of fifth grade children who had long histories of chronic school failure in reading and arithmetic, and another group with equally consistent histories

of school success in reading and arithmetic.³ She found that the children who had experienced continual success set their aspirations at a realistic level, i.e., at a level where success was frequently achieved. The children with a history of chronic failure, on the other hand, set their aspirations with little regard for their achievements. Of those in this latter group, some children apparently lived almost exclusively in terms of their aspirations, ignoring completely the fact that their achievements were entirely out of line with their expectations. In these cases the desire for respectability may have forced the children to an imaginary world where the mere gesture of achieving by setting high goals was accepted in lieu of real achievement. The seriousness of this behavior is sufficiently obvious to need no special emphasis. The institutionalized person for whom a gesture is sufficient to convince him he is Napoleon has traveled further along the same path.

The cases where the children failed to set goals even at the level of their poor achievement may involve withdrawal from the activity in any except a very peripheral sense; they may be cases of extreme caution or they may represent attempts to depreciate the importance of the activity by refusing to take it seriously. None of these outcomes of educational effort are desirable.

What can schools do to avoid throwing out of gear the protective mechanism of the level of aspiration with the resulting unfortunate consequences for the success and failure experiences of pupils? The answers are implied in the discussion, but they may be summarized as follows:

- (1) broaden the basis for evaluating pupils;
- (2) reduce to a minimum the prominence of the relative standing of the pupils;
- (3) allow maximum freedom to pupils to set their own goals and to alter them as their success and failure experiences require; i.e., make success possible at all levels of achievement;
- (4) reduce the dominance of the teacher.

These conditions can be achieved in different ways. It is interesting to note, however, that they can hardly be avoided if democratic teaching procedures are used, if the interests of the child are followed and if group undertakings are an important part of school activities.

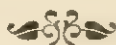
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MAX L. HUTT

A Clinical Study of "Consecutive" and "Adaptive" Testing

As its title suggests, this study might have been placed more appropriately in Chapter 8. But although the student will wish to consider it again in connection with assessment procedures, the findings it reports have direct bearing on attempts to understand individual differences in the nature and strength of pupils' motivations. What are the effects of frustration on motivation? What are the educational implications of the fact that the less adequately adjusted pupil may also have a lower level of tolerance for frustrating conditions?

Professor Max L. Hutt's investigation does not deal primarily with the methodology of teaching, but the thoughtful student will note that the findings are as consequential for the methodology and organization of instruction as for testing procedures.



Among the presumptive advantages of individual psychological examinations is the possibility that the examiner may adapt both his schedule of tests and his technique of examination to the needs of the subject who is being studied. There seems to be little doubt that a schedule of tests specifically designed to probe the significant areas of investigation revealed in a particular referral to the psychological clinic or guidance agency has merit. Only those tests required in the

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given case need to be administered and these can be arranged in a sequence designed to reveal most efficiently the variates under consideration. This process may be said to constitute one aspect of the clinical technique of *adaptation* of the testing program to the individual. Such adaptation involves many factors, among them: arrangement of a schedule of appropriate appointments; initiation of the examination in a manner best calculated to promote and maintain rapport; organization of the schedule of tests and interviews to reveal a maximum amount of information relating to the subject's personality, his methods of work and adjustment, his ideation, his specific capacities and defects; etc.

Yet there is another aspect of the process of clinical adaptation. Within a given schedule of tests, a particular testing instrument may be administered according to standard procedure or it may be modified "experimentally" to reveal highlights of the personality not otherwise readily observable. Wells and Ruesch [12] recommend variations in test procedure, for example, so that the clinician may observe certain types of test behavior and infer therefrom some tenable hypotheses regarding the subject. Hutt and Shor [4] have suggested systematic variations in Rorschach procedure to secure a more comprehensive appraisal of the personality structure. Rodnick and Shakow [8] require the subject to attempt to adapt to an unpredictable sequence of a stimulus as a means of gauging intensity of psychiatric illness. In some cases the adaptive technique is based upon carefully validated experimental studies while in others it is offered as a tentative lead to possibly significant cues about the personality.

This latter concept of adaptation was at least partially responsible for the suggestions offered by many clinical psychologists with respect to the administration of various revisions of the Binet "scale" of intelligence. While no comprehensive theoretical bases may have been offered, this orientation seems to have been implicit in their thinking. Mateer has suggested, for example, the advisability of giving the items of the Stanford-Binet in logical groups rather than by year levels [7] as a means of more adequately analyzing the qualitative aspects of the subject's mental functioning. As a matter of fact, many authorities in the field of clinical psychology, including Bronner [1], Wells [11], and Louttit [6] have offered a number of suggestions for adapting the administration of the Stanford-Binet for these and related purposes. In the case of a standard-

ized intelligence test, such as the Stanford-Binet, the question is properly raised whether, whatever merits adaptation may have, the normative data supplied by the author(s) of the test may be employed when the regular procedure is modified.

This problem is recognized by Terman and Merrill who conclude that with respect to their Revised Stanford-Binet, at least, "The tests of each group should be given in the order in which they appear in the manual and record booklet" [10, p. 55]. They state further [10, p. 55], ". . . it is advisable not to alter the order of presentation," and also [10, p. 55], "Serial testing . . . is not permissible if the test score is to be interpreted in terms of the established norms." These specific admonitions in opposition to the method of adaptation, if the quantitative results are to be utilized, rest on two related assumptions. The first is that any change in the order of testing presumably influences the normative values of the test; the other is that, for all subjects to whom the test is applicable, the prescribed method of administration will yield the most valid quantitative results. Regarding the first of these assumptions, Terman and Merrill have this to say [10, p. 56], "The method in question is indefensible if for no other reason than that it changes the difficulty of the test items by an unknown amount." With respect to the second assumption, however, the authors of the test are judiciously silent. That they are neither naive with respect to the problem nor have failed to consider it is evident from their general instructions for administering the test. Thus, they acknowledge [10, p. 57], "In order to secure the child's best effort, however, it is sometimes necessary to change the test sequence." They also say [10, p. 71], "In preschool testing it is the examiner, even more than the child, who must constantly be adapting himself to new situations and meeting emergencies," and, "It is not always possible with young children to preserve the order of giving tests."

It is believed by the writer that the issue is a basic one. Respect for and awareness of the intricate problems of standardization should not blind us to a basic truth: *adherence to a set of standard directions for administering a test and for controlling the sequence of items within the test is no guarantee of standardized testing conditions.* The same directions and sequence of items are likely, in fact, to have varying effects upon different individuals, depending upon such conditions as: the strength of their drives in taking the

test; their relationship to the examiner; the nature of their successes and failures on the items of the test; their reactions to success and failure; their over-all adjustment and cooperation; their ego maturity.

Empirical evidence convinced the writer that not only from the viewpoint of gaining maximum insight into the subject's mental functioning (qualitative analysis) but also from the viewpoint of obtaining the most valid numerical results (quantitative analysis), a systematic method of adapting the Revised Stanford-Binet was desirable. Nevertheless, he had only his tentative impressions to warrant such a conclusion and he believed it would be desirable to confirm or reject this hypothesis by further investigation. The attempt to provide the data necessary for evaluating this hypothesis is therefore the purpose of the following study.

PURPOSE AND RATIONALE OF THIS STUDY

Our basic hypothesis may be stated briefly as follows:

The standard procedure of giving the items of the New Revised Stanford-Binet in consecutive order from "easy" to "hard" levels of difficulty offers the subject a succession of tasks of constantly increasing difficulty and therefore requires him to be able to tolerate the increasing frustrations inherent in such a situation. Such a procedure is likely to result in decreased motivation in proportion to the subject's degree of maladjustment. Hence, the standard procedure unduly penalizes the maladjusted subject and lowers his Intelligence Quotient rating. From this base, the premise is offered that a modified order of presenting the items of this test, called the "adaptive procedure," will yield higher and more valid ratings for maladjusted subjects.

This hypothesis does not assume that there is a dichotomous classification of "well-adjusted" and "poorly-adjusted" subjects; rather, it assumes that the degree of adjustment may be said to fall on a continuum and that there is a positive correlation between the size of the error of measurement, when the standard procedure is used, and the degree of maladjustment. It is also known that the placement of the items of the Revised Stanford-Binet corresponds

with the age level at which approximately 50 per cent of the subjects of that level passed the item. Thus [10, p. 9], "In preparation for the final tryout, each test was given a provisional age location at the level where the proportion of passes were approximately 50 per cent." From this, we may proceed to the formulation of a second hypothesis:

Any adaptation of the procedure of testing which offers more favorable motivation for subjects who would be unduly affected by the standard procedure of being given all of the more difficult items toward the end of the testing situation, and which does not affect the medium age-placement of the items, does not disturb the norms of the test.

We already have some tentative data supporting this second hypothesis in a study of serial testing conducted by Spache [9]. However, this study does not go far enough since it is concerned primarily with the effects of a single variation in the standard procedure; namely, serial testing.

The implications of these two hypotheses are of considerable consequence. Terman and Merrill are concerned with the need of preserving standard conditions so that valid results may be obtained. There are two general phases of the standard procedure. One is the requirement that each item of the test be given in accordance with standard directions and scored in accordance with the standard criteria and sample responses. There is no dispute with this type of requirement. It is indispensable if the norms of the test are to have any objective meaning. The other phase is the one about which question is raised. This is the requirement that the successive items be given in consecutive, "standard" order. This second phase involves the assumption that the nature of the stimuli (difficulty of the test questions and motivation for attempting these questions) remains constant if, and only if, the order or presentation is kept constant. There are several difficulties with this assumption. For one thing, two subjects who "take" the same items of the test, both scoring the same basal and both completing the test at the same upper level (hereafter called "maximal" in this study) do not necessarily face the same situation. The succession of items may remain the same but the succession of passes and failures may not. This may be true even though both subjects actually obtain the same mental age.

This variation in the pattern of successes and failures may, and likely will, affect the motivation of the subjects. In addition, the nature of each subject's reaction to the necessary succession of failures at the maximal may be quite different; we have no right to assume equal capacities for frustration tolerance on the part of different subjects.

For another thing, two subjects who obtain the same mental age may be given different batteries of test items to secure this rating. One may establish a lower basal or a lower maximal or some other variation in the pattern may obtain. Hence, the degree of practice with items of the scale may vary. For example, one subject may have had 5 digits forward at year level VII before getting to 6 digits forward at year level X, while another may not. The same may be true for other types of items such as verbal absurdities, digits backward, abstract words, picture absurdities, etc.

Still another difficulty with the assumption of equal practice, is the occasional need to vary the order of tests when a subject is negativistic, fatigued, bored and so on. While this contingency is more explicitly accepted by Terman and Merrill in the case of preschool children, it may also occur with older subjects. Moreover, when the typical populations of clinic cases are considered, whose cases are often "referred" because of difficulties in adjusting educationally, emotionally, and socially, the need of variation in procedure is more emphatic [5]. Is it not better to provide systematic principles for variation or adaptation, than to leave such variation to fortuitous or chance factors?

Finally, it is necessary to say a word concerning the basic problem of interpersonal relations involved in an individual intelligence test. We always recognize the importance of establishing rapport before giving such a test. Is it too much to ask that we also consider the broader problem of the relationship of the examiner to examinee with respect to such things as the counseling problem or the effect upon the subsequently developed reputation of the clinic, and the like? If we systematically end each individual intelligence test with a series of tasks which the subject fails (in establishing the maximal) are we not encouraging the development of attitudes of hostility toward the examiner (and the clinic)? Speaking on the basis of his own experience, the writer believes that such a test requirement is not desirable; neither is it realistic. Moreover, the attempt

of the examiner to overcome such negative feelings as may develop in the examinee, by means of encouragement, praise, or rationalization are hardly adequate to mitigate the undesirable effects of this situation.

The basic reasons for this study have already been discussed. It may also be desirable to indicate some of the considerations that *did not* enter into the investigation of the merits of adaptive testing. Efficiency (saving of time) was not a consideration. It is believed that there is relatively little saving of time in so-called serial testing and that moreover this point is essentially an irrelevant consideration. Nor did Mateer's argument concerning the advantage of serial testing in that it enables the examiner to compare the subject's performance on different groups of items, enter our consideration; such an analysis may be made, if desired, after the test has been completed, no matter what the method of administration may have been.

The basic consideration guiding us was to provide a set of principles which could guide the examiner in adapting the sequence of items so as to provide maximum motivation for subjects who differ in the pattern of their intellectual organization as well as in their personality structure. Observation of the behavior of subjects during the course of individual intelligence testing over many years yielded the hypothesis that maximum motivation might be secured by alternating hard and easy items, thus avoiding a sequence of at least six consecutive failures at the maximal. This and other observations, considered in the light of the reported practice of other psychologists, led us to the formulation of the following set of principles which together comprise what we have called "An Adaptive Procedure."

I. Begin the New Revised Stanford-Binet with an item from a year level sufficiently below the anticipated mental level to insure the subject's success with this item. (On the basis of our experience with children from the middle range of the elementary school grades, for example, we would usually begin about four years below the anticipated mental level.)

II. Begin the test with an item which does not require considerable concentration, rapid response, or prolonged and involved verbal directions. (For example, at the VIII year level, the examiner would *not* start with the Memory for Sentences. At the IX year level, he

would avoid, at first, Paper Cutting, Memory for Designs, Digit Reversed. At the X year level he would avoid Word Naming, and Digits Forward, etc.)

III. Alternate "easy" and "hard" items. (In other words, after the subject fails an item give him an easier one; after he passes an item he may be given a more difficult one.)

IV. Administer "serial" tests serially and as early as possible, after the subject has "warmed up". (This is done, not so much as a time-saver but as a means of helping to establish both the basal and maximal early in the test. For purposes of this study a "serial" test may be defined as one in which the same types of items occur at more than one level and in which the directions for administration are essentially the same at all levels. Thus, Digits Forward, Digits Backward, Verbal Absurdities, Picture Absurdities are examples of "serial" tests.)

V. Establish both the basal and maximal as early in the test as feasible. (This means, in practice, alternating items from the presumed basal and maximal as soon as there is some evidence that these will, in fact, become the two extremes of the test range.)

VI. Ordinarily, do not administer tests below the presumptive basal or above the presumptive maximal. (In practice, the presumptive basal is that level below which there has not yet been any failure, and the presumptive maximal is that level above which there has not yet been any success.)

Preliminary experience with the Adaptive Procedure warranted the judgment that it might: (a) help to provide maximum motivation for most subjects; and (b) help to avoid chance failures both at the beginning of the test, due to inadequate early adjustment, and near the end of the test, due to repeated failures and increasing frustration of the subject. This method of testing encourages the examiner, operating within the stated principles, to use his clinical judgment, to select those items for the beginning of the test which are likely to be most appropriate for the given subject, to proceed upon the basis of the actual results achieved as the examination progresses, and to end the test with items at about the actual mental level of the subject. Some of its other features will be noted later. It should not be necessary to add that each of the items of the test was given in strict accordance with the standard directions described by Terman and Merrill; only the sequence of items is modified with this procedure. (This is not to gainsay the many possible

values of modifying the directions of the test, when, for other purposes, certain qualitative aspects of test behavior are being explored.)

PROCEDURE AND RESULTS

The data for this study were obtained from Revised Stanford-Binet examinations administered by the five staff psychologists of the Educational Clinic of the College of the City of New York and by sixteen trained, graduate students at the College. All of the examiners were well versed in administering Form "L" of the test by both the standard and the adaptive methods. The subjects of the study were selected from: (a) cases referred to the Educational Clinic; (b) a small number of cases being studied by the graduate program in clinical psychology. The examiners participating in this study agreed to use the standard and the adaptive methods of testing alternately with successive cases; in this way, it was believed that the examiners would maintain approximately equal proficiency with each of the procedures. In slightly less than two years, 1,123 test records were available. The following criteria were utilized in eliminating the records of certain individuals: (a) only those tests were retained in which the results were evaluated by the examiners as affording reliable measures of the subjects examined; (b) the test records of foreign-born children and of those for whom English was not the mother tongue were not used; (c) only those cases of children born and brought up in New York City were retained (this was done to assure roughly comparable general educational experience); (d) an attempt was made to match the "consecutive" and "adaptive" cases on the basis of certain criteria described below. The analyses which follow are based upon a total population of 630 cases, 290 of which were tested by the "consecutive" method and 340 of which were tested by the "adaptive" method. In addition to the Binet results, considerable additional clinical data were available for most of these cases; these data were gathered in the routine work of the clinic. Table I presents some of the basic data for this population. There were 311 girls and 319 boys.

The total population was further subdivided into three subgroups, on the basis of school grade. Subgroup I included cases from grades kindergarten to 3B inclusive ($N = 181$); Subgroup II in-

TABLE I
BASIC DATA CONCERNING THE TOTAL
POPULATION OF THE STUDY
 $N = 630$

| <i>Variable</i> | <i>Mean</i> | <i>S.D.</i> | <i>Range</i> |
|--------------------------|--------------|-------------|--------------|
| Age | 132.2 (mos.) | 22.1 | 66 to 208 |
| I.Q. | 103.4 | 16.2 | 68 to 163 |
| School Grade (median) | 4A | | Kg to 9B |

cluded cases from grades 4A to 6B inclusive ($N = 265$); Subgroup III included cases from 7A to 9B inclusive ($N = 184$). As a result of the matching process, referred to above, the "consecutive" and "adaptive" cases were closely similar in chronological age, school grade and Binet vocabulary score,¹ as may be seen from Table II.

TABLE II
COMPARISON OF THE "CONSECUTIVE" AND THE "ADAPTIVE" GROUPS IN AGE,
SCHOOL GRADE AND VOCABULARY SCORE

| <i>School Subgroups</i> | <i>TRAIT</i> | <i>"CONSECUTIVE" GROUP</i> | | | <i>"ADAPTIVE" GROUP</i> | | | <i>DIFF. σ Diff.</i> |
|-------------------------|--------------------|----------------------------|-------------|-------------|-------------------------|-------------|-------------|--------------------------|
| | | <i>N</i> | <i>Mean</i> | <i>S.D.</i> | <i>N</i> | <i>Mean</i> | <i>S.D.</i> | |
| I, KG-3B | C.A. ^a | 80 | 95.4 | 9.7 | 101 | 95.8 | 9.3 | 0.03 |
| | Grade ^b | 80 | 2.9 | 1.0 | 101 | 2.8 | 0.8 | 0.71 |
| | Vocab. | 80 | 8.8 | 1.3 | 101 | 8.6 | 1.3 | 0.98 |
| II, 4A-6B | C.A. ^a | 115 | 120.7 | 10.3 | 150 | 121.1 | 10.0 | 0.31 |
| | Grade ^b | 115 | 5.2 | 1.3 | 150 | 4.9 | 1.1 | 2.00 |
| | Vocab. | 115 | 13.3 | 1.3 | 150 | 12.9 | 1.4 | 2.35 |
| III, 7A-9B | CA. ^a | 95 | 159.3 | 12.2 | 89 | 158.6 | 12.6 | 0.38 |
| | Grade ^b | 95 | 8.1 | 1.2 | 89 | 8.0 | 1.3 | 0.67 |
| | Vocab. | 95 | 16.0 | 1.5 | 89 | 16.1 | 1.4 | 0.48 |

^a C.A. is the chronological age expressed in months.

^b Grade is expressed in terms of a ten month year; thus, 0.0 represents the first month of kindergarten, 1.0 represents the first month of the 1st year, and so on up to 9.9 which represents the last month of the ninth year or 9B grade.

The standard error of the difference was employed in evaluating the significance of the differences in means because of the relatively large size of the populations. Judged on the basis of this

¹ The groups were equated in vocabulary for two major reasons: (a) this item correlates very well with the results on the total Binet scale; (b) this test is administered in the same manner for both "consecutive" and "adaptive" groups and is therefore unaffected by the experimental factor of this study.

statistic, none of the differences between the means of the "consecutive" and the "adaptive" groups is reliable.

As a first step in the analysis of the results of the two methods of testing, the median I.Q. was obtained for each subgroup. The logic of this procedure seemed clear. Terman and Merrill decided upon the placement of items of the revised Stanford-Binet on the basis of the ". . . shapes and the curves of the percents passing by age" [10, p. 9]. In essence, then, the median age position of each item determined its placement. There is little, if any, effect upon item placement in terms of the extremes of the curves of "percents passing." Hence, any modification of the administration of an item or of items of the scale, which did not change its (or their) median age value(s) would not affect the norms of the test to any appreciable extent. It was therefore possible that the "adaptive" procedure might raise (or lower) the test results for some portions of the population without thereby affecting the median result for the population, even though the means might be modified. If this were the case, the results would favor our second hypothesis. This would be true even if the total result of equivalent median I.Q.'s for the two methods of testing was obtained because some items were favored while others were adversely affected by either of the methods. The median I.Q.'s are given below for each of the subgroups.

| | <i>"Consecutive"</i> Method | <i>"Adaptive"</i> Method |
|--------------|--------------------------------|-----------------------------|
| Subgroup I | 101.7 | 101.5 |
| Subgroup II | 105.3 | 105.2 |
| Subgroup III | 101.4 | 102.1 |

All of the differences in medians are small (the largest being 0.7 points) and in terms of the standard errors of the differences of the medians, none is statistically significant. We may tentatively conclude, then, that "adaptive" testing, as described, does not significantly affect the "norms" of the test, although we do not know, as yet, what influence, if any, it may have upon specific items of the test, or specific members of the experimental population.

To explore the latter question, two additional analyses were made. The first involved obtaining the means and standard deviations in intelligence quotient for each of the subgroups in our study. The data in Table III suggest a number of possibilities. The

means of the "adaptive" subgroups are consistently higher than those of the "consecutive" subgroups. The same is true of the standard deviations. While none of these individual differences is statistically significant in terms of the standard error of the difference, the overall difference between the two methods, when evaluated by analysis of variance, is significant at the 5 percent level, but not at the 1 percent level. It was decided, therefore, to explore the possible relationship between the degree of maladjustment of the subject and the method of test administration.

TABLE III
MEANS AND STANDARD DEVIATIONS IN INTELLIGENCE QUOTIENT
OF THE "CONSECUTIVE" AND THE "ADAPTIVE" SUBGROUPS

| <i>School Subgroups</i> | <i>"CONSECUTIVE"</i> | | | <i>"ADAPTIVE"</i> | | |
|-------------------------|----------------------|-------------|-------------|-------------------|-------------|-------------|
| | <i>N</i> | <i>Mean</i> | <i>S.D.</i> | <i>N</i> | <i>Mean</i> | <i>S.D.</i> |
| I (Kg-3B) | 80 | 100.8 | 14.9 | 101 | 102.3 | 15.7 |
| II (4A-6B) | 115 | 105.7 | 15.8 | 150 | 107.1 | 16.5 |
| III (7A-9B) | 95 | 103.1 | 14.7 | 89 | 105.2 | 15.2 |

Comprehensive clinical data, including social histories, school records, medical findings and other psychological test data were available for 493 of the 630 cases being studied. Each of these cases was given an overall clinical rating¹ on total adjustment; the ratings assigned were: "4" for "very well adjusted"; "3" for "fairly well adjusted"; "2" for "poorly adjusted"; and "1" for "very poorly adjusted." It was then possible to match 33 cases in category "4" who had been tested "consecutively" with 33 cases who had been tested "adaptively." The matching, as before, was on the basis of three factors; age, school grade and vocabulary score. Similarly, 24 cases in category "1" who had been tested "consecutively" were matched with 24 cases in the same category of the "adaptive" group. Once again the means and standard deviations in intelligence quotient on the revised Stanford-Binet, Form "L" were obtained for each subgroup. The data in Table IV present a striking contrast between the two groups within the "very well adjusted" category and those within the "very poorly adjusted" category. These data support the hypothesis that "adaptive" testing does not yield higher I.Q. ratings

¹ These ratings were assigned independently by each of the original examiners, on the basis of the total clinical record.

on this test than "consecutive" testing when results are compared for the very well adjusted school children; they further support the hypothesis that when the methods are compared for very poorly adjusted groups, those tested by the "adaptive" method secure a reliably higher I.Q. rating.

TABLE IV
I.Q. RATINGS OF MATCHED GROUPS COMPARED FOR
"ADAPTIVE" AND "CONSECUTIVE" METHODS OF TESTING

| <i>Type of Group</i> | <i>"CONSECUTIVE"</i> METHOD | | | <i>"ADAPTIVE"</i> METHOD | | | <i>t-test</i> |
|----------------------|--------------------------------|-------------|-------------|-----------------------------|-------------|-------------|---------------|
| | <i>N</i> | <i>Mean</i> | <i>S.D.</i> | <i>N</i> | <i>Mean</i> | <i>S.D.</i> | |
| Very well Adjusted | 33 | 109.6 | 12.7 | 33 | 110.4 | 11.9 | 0.01 |
| Very poorly Adjusted | 24 | 91.7 | 10.6 | 24 | 102.7 | 12.7 | 4.47 |

There is no pretense that all other relevant factors have been controlled adequately. However, the double check provided by our experimental design, that is, the careful matching on presumably significant variables on the one hand, and the comparative differences in the cases of well and poorly adjusted groups, on the other, offers support to the conclusion that the results obtained may be attributed to the differences in the experimental factor (method of testing) and not to chance or uncontrolled factors. Moreover, the data previously supplied, which show that the "norms" of the test tend to remain unaffected by the differences in methods of testing for the total population as well as for the defined subgroups, confirm the hypothesis that "adaptive" testing yields relatively higher I.Q. ratings than does "consecutive" testing only in the case of children with a poor overall adjustment. This conclusion is in accord with the original argument that the method of "consecutive" testing tends to produce an accumulation of frustration which unduly depresses the I.Q. rating in the case of maladjusted children.

Having said all of this, it is still a "long jump" to the possible conclusion that results with the "adaptive" method yield more valid results. Validity should be evaluated by means of criteria external to the test itself; such criteria as total clinical evaluation, relation of the obtained ratings to subsequent progress in school, predictive

value of the rating in terms of a later rating after adjustment improves, and the like are examples of the type of validity criteria needed. Unfortunately, we do not have sufficiently extensive data for such validation at this time. However, it is believed that the ratings of mental capacity, freed somewhat from the effects of an otherwise frustrating test situation, are likely to be more revealing of "present" growth potentials. In effect, what "adaptive" testing appears to do is to enable the subject to obtain a better "maximum" rating which may represent more the cognitive than the conative aspects of his present capacities.

Our data offer some support for this line of reasoning in still another aspect. When the vocabulary scores for the matched "very poorly adjusted" groups tested by "consecutive" and "adaptive" methods respectively are compared, the following situation obtains. The "consecutive" group of 24 cases has a mean vocabulary score of 12.2, with a standard deviation of 2.3 while the "adaptive" group of 24 cases has a mean vocabulary score of 12.0 with a standard deviation of 2.4. These two groups are apparently fairly equivalent in respect to this item of the scale. According to Terman and Merrill, scores on this item correlate, on the average, for single age groups, to the extent of .81 with ratings on the scale as a whole [10, p. 302]. This item may, therefore, be used to estimate the rating for the whole scale, at least in a rough fashion. It will be noted that, despite relative equivalence of the two groups on vocabulary score, the mean I.Q. ratings of the two "very poorly adjusted" subgroups, are reliably different (see Table IV.). Moreover, the "adaptive" subgroup obtains an I.Q. rating which is fairly commensurate with the mean vocabulary score (with a mean C.A. of 121 months and a mean I.Q. of about 103, the prorated M.A. would be 124 months and the "expected" vocabulary equivalent would be a score of about 12), while the "consecutive" subgroup obtains an I.Q. rating which is considerably lower than the equivalent vocabulary score (with a mean C.A. of 123 months and a mean I.Q. of about 92, the prorated M.A. would be 112 months and the "expected" vocabulary score would be about 10).

If we therefore accept the vocabulary score, obtained with both subgroups in the same manner, as indicative of what the "true" I.Q. rating should be, we then find that the "adaptive" method

more closely approximates the "true" rating of intelligence. In other words, we should have expected the "consecutive" group with a mean vocabulary score of 12.2 (actual) to have obtained a mean I.Q. rating more nearly equivalent to its vocabulary score (or an I.Q. rating of about 106 if the mental age equivalent of 120 months is used for the vocabulary score of 12.0). The lower, obtained I.Q. rating of 91.7 may be attributed to the adverse effect(s) of testing this group with the "consecutive" method. It is admitted that this evidence is not adequate by itself, but taken together with the other evidence, discussed above, it is strongly suggestive of the line of reasoning we have followed.

DISCUSSION

The rationale offered in favor of routine testing with the "adaptive" method in place of the standard "consecutive" method is based upon the hypothesis that the latter method requires the subject to be able to tolerate the accumulating frustrations of failures toward the end of the examination. There are other advantages of this method which should be alluded to. Chief among these, is the advantage that this method is less likely to result in "undiscovered" inversions (the phenomenon in which a subject fails or would fail an item of the test if levels below the basal were attempted, or conversely passes or would pass an item above the maximal). Other investigators [2, 3, 5] have shown that inversions occur (when the examiner tests below the basal or above the maximal) in from 15 to 60% of the cases examined. The dual procedures involved in "adaptive" testing, that is, serial testing and alternating easy and hard items, offers some guarantee that the possibility of such inversions will be uncovered, without resorting to routine testing beyond the usual limits of the examination. Such a procedure therefore, adds to the reliability of the rating obtained, the increase in reliability probably being in proportion to the degree of the subject's maladjustment.

Another advantage claimed for "adaptive" testing concerns the awareness that the examiner may have of the emotional reactions of his subject. It is of course true that such awareness depends in the

main on the examiner's skill in observing the subject's behavior and being sensitive to subtle nuances in his adjustment during the examination. However, since "adaptive" testing requires the examiner to be constantly alert to the subject's success with successive items of the scale, it may also help him to focus his attention on the accompanying nuances in his behavior and adjustment.

On the other hand, there are several disadvantages inherent in the method of "adaptive" testing. For one thing, it requires the examiner to shift rapidly from one part of the scale to another. In turn, this requires either that he shift in the pages of the manual of the test, as well as of the Record Booklet, or that he know the items of the scale from memory and use an abbreviated Record Form. The first of these alternative requirements for good "adaptive" testing can be met if the examiner becomes a really expert examiner; it then becomes an advantage. The second requirement, that involving a shorter Record Form, means in practice that the examiner does not have sufficient room in the record to write the subject's responses verbatim. For those who insist upon verbatim records this will be a serious handicap. Unless the examiner uses an additional sheet (or sheets) of paper, he will be unable to obtain a verbatim record. For those who do not insist upon recording of all responses, but perhaps only the unusual or doubtful responses (from the scoring point of view), this will not prove to be a serious handicap. It may even require the examiner to be more expert in his scoring technique, since "on-the-spot" scoring is required.

Another feature which may be regarded as a disadvantage is the freedom of the examiner in using his clinical judgment in choosing successive items for administration (within the set of stated principles). This aspect of the procedure is unavoidable if "adaptive" testing is utilized. In the writer's opinion, such a procedure is quite frequently necessary in dealing with "clinic cases" and is, in fact, to be regarded as an advantage. The method presumes that the examiner is more than a "psychometrist" and is in fact a "clinician" in the broad meaning of that term. While such a presumption may not be necessary for the testing of well-adjusted children, it is believed to be essential for any valid clinical work. The subtle process of gaining and maintaining rapport requires that the examiner be skilled in interpreting behavior and be capable of adjusting the

examination procedure to the particular personality with which one is dealing. In the end, aside from the demonstrable statistical evidence one may introduce in favor of one method or another, it is believed that clinical work necessitates constant adaptation to the subject and constellar judgments of the actual evidence that one obtains; within such a framework our "adaptive" method offers many advantages.

No data have been supplied concerning the possible effect of the "adaptive" procedure upon individual items of the scale. This is regarded as a serious omission. The author hopes to supply such evidence in subsequently published articles.

CONCLUSIONS

This study has attempted to investigate the relative effects upon I.Q. ratings obtained with "consecutive" as compared with "adaptive" methods of testing with the Revised Stanford-Binet Scale, Form L. These methods were applied to a total population of 1,123 cases, from which 630 cases were selected for detailed study. The results of this study suggest the following conclusions.

1. When applied to "total populations" or to very well-adjusted cases, the two methods yield comparable results. This is taken to indicate that, in general, the "norms" of the test are not significantly affected by "adaptive" testing.

2. Analysis of our data warrants the probable conclusion that for poorly adjusted individuals and especially for very poorly adjusted ones, the "adaptive" method yields higher I.Q. ratings which appear to be more valid for the cases studied.

3. There are advantages and disadvantages to "adaptive" testing. Statistical evidence as well as theoretical considerations and empirical observations favor, in the author's opinion, the use of the "adaptive" method, at least for clinical cases.

4. Additional data relating to the validity of I.Q. ratings obtained by either "consecutive" or "adaptive" testing are needed. Such data should be external to the test evidence and should be related to clinical evidence and evidence from other sources.

5. No data concerning the effect of the "adaptive" method upon the individual items of the scale have been supplied. It is hoped that such evidence may be published in subsequent articles.

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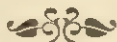
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The Effect of Praise or Blame on the Work Achievement of "Introverts" and "Extroverts"

Analyses of the language used by teachers in interacting with pupils reveal that a great deal of it is "praising" or "blaming" language. Sometimes the teacher is aware of this—often, indeed, he acts on the assumption that praising his pupils has a positive effect on their willingness to exert effort and on the level of their achievement. The pupils in a class, however, differ considerably in their personality characteristics, and it may be that "praise" and "blame" do not have general and predictable effects on all. There is the possibility that different pupils respond to such approval and disapproval in markedly different ways.

This study inquires into the effects of teacher "praise" and "blame" upon the achievement effort of two groups of elementary-school pupils: those who tend toward introversion and those who tend toward extroversion.



An investigation by Forlano and Axelrod¹ has indicated that repeated applications of praise or blame have differential effects on

¹ Forlano, George, and Axelrod, H. C.: "The effect of repeated praise or blame on the performance of introverts and extroverts." *J. Educ. Psychol.*, 1937, 28, 92-100.

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the work of performance of 'introverts' and 'extroverts.' In the investigation conducted by them, praise or blame was repeated only two times. The present study was conducted to determine the effects of more extended applications of praise or blame on the work achievement of 'introverts' and 'extroverts.' The methods employed, however, are quite similar to those used by Forlano and Axelrod.

If praise or blame has differential effects on children with different personality characteristics, teachers should be cognizant of the fact. It seems altogether possible that indiscriminate praise may be as detrimental to a pupil's school achievement and personality development as indiscriminate blame. It also seems possible that the skillful teacher could at times employ blame, as well as praise, to foster the child's general adjustment.

METHOD

Subjects

Fifth-grade pupils from five classes in the Syracuse Public Schools² were selected as subjects for this study. One class of twenty-seven pupils was used for the control group. The remaining four classes (comprising ninety-seven pupils) were subdivided into the various experimental groups in the manner described below.

Several days before the experiment proper was conducted the Introversion-Extroversion section of a Personality Test by Pintner and others was administered to all of the one hundred twenty-four subjects employed in this study. On the basis of total scores obtained on this thirty-five-item test the children in each class were divided into two groups. Pupils with scores above the median were considered 'extroverts,' while those pupils with scores below the median were considered 'introverts.'

In the first class of fifth-grade pupils the 'extroverts' were praised after each task, and the 'introverts' were blamed. In the second class of pupils this procedure was reversed and the 'extroverts'

² The experimenters wish to express thanks to Mr. C. Spencer Chambers, Principal of Lincoln School, and to Mr. Horace Roberts, Principal of Seymour School in Syracuse, New York, and to the teachers of these schools for their enthusiastic coöperation.

were blamed while the 'introverts' were praised. By alternating this procedure in the remaining two classes it was possible to obtain approximately the same number of pupils in each of the four experimental combinations.

Introversiion-Extroversiion Scores.—The forty-seven subjects who were praised after each task (including both 'introverts' and 'extroverts') obtained a mean score on the Introversiion-Extroversiion test of 21.2. The fifty subjects who were blamed after each task (including both 'introverts' and 'extroverts') obtained a mean score of 21.9. The Control Group of twenty-seven pupils obtained a mean score of 21.5. A statistical analysis of the introversiion-extroversiion scores obtained by these three groups resulted in an *F* of 0.317, which is not significant at any acceptable level of confidence. Hence, these three groups may be accepted as unbiased samples from the same population with respect to introversiion-extroversiion.

The mean introversiion-extroversiion scores obtained by the pupils in each of the four experimental combinations are shown in Table I.

TABLE I

| <i>Experimental Groups</i> | <i>Number of Subjects</i> | <i>Mean score on Introversiion-Extroversiion</i> |
|----------------------------|---------------------------|--|
| Extroverts—Praised | 23 | 24.4 |
| Extroverts—Blamed | 28 | 23.8 |
| Introverts—Praised | 24 | 18.2 |
| Introverts—Blamed | 22 | 19.5 |

The results of a statistical analysis of the mean introversiion-extroversiion scores obtained by the subjects of the four experimental combinations are presented in Table II.* It may be concluded from these results that the Extrovert-Praised and the Extrovert-Blamed groups are not significantly different in mean introversiion-extroversiion scores; and that the mean introversiion-extroversiion scores obtained by the Introvert-Praised and the Introvert-Blamed groups are also not significantly different. All of the other combinations within the four experimental groups are significantly different with respect to mean introversiion-extroversiion scores. The results of this analysis satisfy the requisite conditions for this experiment: (1) that the two extrovert groups be unbiased samples from a popula-

* [Table omitted.]

tion of 'extroverts' and (2) that the two introvert groups be unbiased samples from a population of 'introverts.' *

Tasks and Procedure

Six alternate forms of a cancellation test were constructed in order to measure each pupil's work achievement under the various experimental conditions. The different forms of this test were made sufficiently long so that no subject would be able to complete the task during any testing session. Each of these cancellation tests consisted of Arabic numerals from zero to nine presented in random sequences within each row. The pupils were instructed to draw a line through each of the 7's on the test sheet. Previous research has indicated that a cancellation test of this type has a low correlation with either intelligence or chronological age and has a substantially high reliability coefficient. In the present experiment employing one hundred twenty-four pupils a positive correlation of .87 was obtained between the combined scores of the three odd-tests and the combined scores of the three even-tests.

Before copies of the first test were distributed to any group of subjects an example of several numerals was placed on the blackboard and the experimenter demonstrated the manner in which a line was to be drawn through each of the 7's. The usual precautions were taken to insure each subject's readiness to start work on the 'begin' signal and to cease work immediately after the 'stop' signal.

The duration of each test period for both the control and the experimental groups was thirty seconds. A work period of such short duration seemed advisable because of the intrinsic dullness of the task. In thirty seconds it seemed unlikely that the subjects would become satiated with the task or that they would reach in six test pe-

* The Control Group was not included in the comparisons because of its obvious overlap in introversion-extroversion scores with the two extrovert and the two introvert groups. A control group is not necessary to test the differential effect of praise or blame on 'introverts' and 'extroverts,' if the pupils in different experimental combinations do not differ significantly in their performance on the first assigned task. It will be shown later in this report that the subjects in the four experimental groups obtained essentially the same scores not only on the first task, but also on the second task (after the first differential incentives had been given).

riods a level of performance that would preclude any further improvement in work output. Analysis of the results has shown that test periods of thirty-seconds duration provide reliable scores; however there is some indication in the data that the experimental groups showing the greatest improvement in work achievement may have reached a level of performance that tended to make further improvement increasingly difficult.

In the control group no comments were made between any of the testing sessions. After the sixth and last task had been completed, the experimenter announced that all of the pupils had done satisfactory work.

In order to provide individual incentives to the subjects in the experimental groups the teacher passed around the room after each testing period, studied each pupil's paper for a few seconds, and placed a 'P' or a 'G' on it. The pupils were asked to keep their marks secret. The teacher had been previously instructed as to which subjects were to receive marks of 'P' (poor) and which subjects were to receive marks of 'G' (good). After marking the first set of test papers, the teacher wrote a large 'P' and a large 'G' on the blackboard, and informed the pupils that those who had received 'P's' had done very poorly and those who had received 'G's' had done exceedingly well. After marking the papers for each of the subsequent tests the teacher reminded the subjects that 'P' stood for poor work and 'G' for good work.

It is assumed in this study that a mark of 'G' represented to the subjects a form of teacher praise; and that a mark of 'P' represented a form of teacher blame. The fact that the pupils had no assurance that their 'good' or 'poor' marks would not be made known to the entire class may also have been functioning as a form of motivation. The experimenters observed that some of the children who were blamed after each test became increasingly disturbed when they failed to obtain a 'G' on their test papers. It was observed that some of the 'blamed' pupils increased their efforts after receiving a poor mark, while other pupils who were blamed became distracted or sullen when the next test was given. One pupil who was continuously blamed became so resentful that he refused to try on the last test; his teacher reported that this was his typical reaction when he was reprimanded for poor school work.

At the end of the final test all children were marked 'G.' This

could have no experimental effect and might leave the children with a pleasanter emotion. Most of the students who had been receiving 'P' now showed marked signs of elation, indicating that the motivation had been functioning. This was particularly true of those 'blamed' students who were normally accustomed to receiving good grades.

The 'unfairness' of the experimental situation could not have been unusually disturbing. It was of short duration. More important, the customary pattern of assigning marks in school continues over a period of years to 'blame' individuals for inadequacies beyond their control.

RESULTS

Comparison of Blamed, Praised, and Control Groups

To compare the work achievement of the Blamed (both introverts and extroverts), the Praised (both introverts and extroverts), and the Control Groups, the cancellation scores obtained by each subject on the first test were subtracted from the scores obtained on each of the succeeding five tests. This procedure was followed because the Control Group obtained somewhat higher scores on the first test than did the Blamed or the Praised Groups. The derived data are shown in Table III. It should be recalled that no extrinsic incentives were applied before the first test.

TABLE III

| <i>Experimental Groups</i> | MEAN GAINS IN CANCELLATION SCORES | | | | |
|----------------------------|-----------------------------------|---------------|---------------|---------------|---------------|
| | <i>Test 2</i> | <i>Test 3</i> | <i>Test 4</i> | <i>Test 5</i> | <i>Test 6</i> |
| Total Blamed Group | 18.1 | 16.3 | 17.9 | 20.3 | 21.1 |
| Total Praised Group | 18.3 | 16.2 | 16.6 | 19.6 | 19.9 |
| Control Group | 11.6 | 11.4 | 11.2 | 12.5 | 14.9 |

An analysis of variance was made of the gains shown by these three groups on tests 2, 3, 4, 5 and 6. F was found to be significant at the one-percent level of confidence for each of the five gains. Since F was found to be significant for each of the five gains, it was permissible to compare the mean gains of the three groups for each

of the last five tests. The results of this analysis are presented in Table IV.*

The values presented in Table IV shows that there are no significant differences between any of the mean gains obtained by the Blamed and the Praised Groups on the last five tests. These values further show that all five of the mean gains obtained by the Control Group are significantly smaller than those obtained by either the Praised or the Blamed Group.

It may be concluded: (1) that either praise or blame was more effective than no external incentive in increasing the work output of these fifth-grade pupils; and (2) that praise and blame were equally effective in motivating fifth-grade pupils when 'introverts' and 'extroverts' were not differentiated.

However, it should be pointed out that the increased work output shown by the Praised and the Blamed Groups is almost entirely the result of the first incentive applied. The succeeding applications of praise or blame did not materially alter the pupils' mean scores, although the initial superiority attained by the Praised and the Blamed Groups after the application of the first incentives was maintained consistently during the later tests.

Comparison of E-B, E-P, I-B, and I-P Groups

The mean cancellation scores obtained on each of the six tests by the Extrovert-Blamed, the Extrovert-Praised, the Introvert-Blamed, and the Introvert-Praised Groups are presented graphically in Figure 1.

An analysis of variance of the cancellation scores obtained by these four experimental groups on each of the six tests show that F was not significant for tests 1, 2 and 3; but was significant at the one per cent level of confidence for tests 4, 5 and 6. It may be concluded that there were no significant differences in work output between any of the four experimental groups on tests 1, 2 and 3, although the differences on test 3 showed a consistent trend toward the significant differences found for tests 4, 5 and 6. The results of this analysis permit a comparison of the mean cancellation scores obtained by these four experimental groups on tests 4, 5 and 6. The *t*'s for differences between mean scores are presented in Table V.

* [Table omitted.]

TABLE V

t's FOR DIFFERENCES BETWEEN MEAN SCORES

| | TEST 4 | | | TEST 5 | | | TEST 6 | | |
|---------------|--------|----------|---------------------|--------|----------|---------------------|--------|----------|---------------------|
| | Diff. | <i>t</i> | Level of Confidence | Diff. | <i>t</i> | Level of Confidence | Diff. | <i>t</i> | Level of Confidence |
| E-B minus E-P | 5.9 | 2.80 | 1% | 6.3 | 3.01 | 1% | 6.4 | 2.83 | 1% |
| E-B minus I-B | 5.9 | 2.76 | 1% | 7.1 | 3.31 | 1% | 6.6 | 2.87 | 1% |
| I-P minus E-P | 4.8 | 2.21 | 5% | 5.8 | 2.71 | 1% | 5.4 | 2.32 | 5% |
| I-P minus I-B | 4.8 | 2.18 | 5% | 6.6 | 3.05 | 1% | 5.6 | 2.35 | 5% |
| E-P minus I-B | 0.0 | — | — | 0.8 | 0.37 | — | 0.2 | 0.01 | — |
| E-B minus I-P | 1.1 | 0.53 | — | 0.5 | 0.25 | — | 1.0 | 0.45 | — |

These comparisons of mean scores substantiate what one could reasonably predict by examining Figure 1.

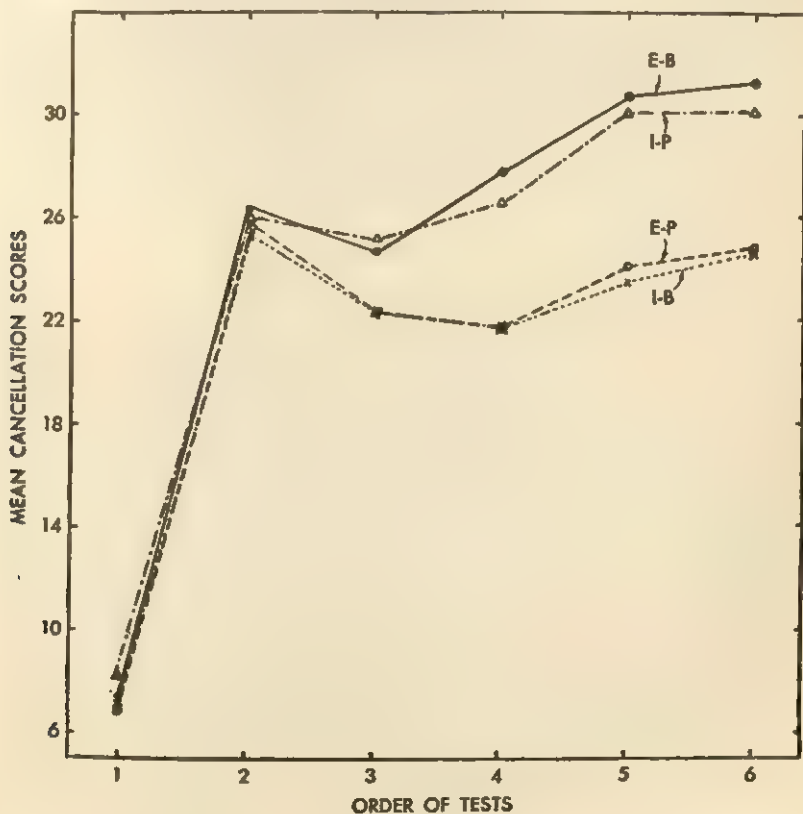


FIGURE 1

1) On tests 4, 5 and 6 the extroverts who were blamed (E-B) obtained significantly higher cancellation scores than either the E-P or the I-B Groups.

2) On tests 4, 5 and 6 the introverts who were praised (I-P) obtained significantly higher cancellation scores than either the E-P or the I-B Groups.

3) On tests 4, 5 and 6, as well as on tests 1, 2 and 3, the E-P and the I-B Groups did not differ significantly in mean scores. There were also no significant differences between the mean cancellation scores obtained by the E-B and the I-P Groups on any of the six tests.

In more general terms, it may be concluded from these results that applications of praise or blame, when repeated often enough in the form of school marks, have differential effects on the cancellation scores of introverted and extroverted fifth-grade pupils. Introverts achieve a higher level of performance when praised, and extroverts respond most favorably when blamed. The increasing divergence of the curves (Fig. 1) further indicates that there is a cumulative effect of repeated praise or blame on 'introverts' and 'extroverts.'

SUMMARY AND CONCLUSIONS

The purpose of the present study was to determine the effects of repeated applications of praise or blame on introverted and extroverted fifth-grade pupils. One hundred and twenty-four fifth-grade pupils were selected as subjects. The Introversion-Extroversion section of a Personality Test by Pintner and others was used to classify the pupils into two groups with regard to introversion-extroversion. Cancellation tests were employed to measure the effects of repeated praise or blame on the experimental groups. Praise or blame was administered by the teacher's placing a mark of 'G' (good) or 'P' (poor) on the subject's test paper. A control group was employed to test the effects of repeated applications of praise or blame on an unclassified population of fifth-grade pupils (introverts and extroverts grouped together).

The analysis of the data collected indicates that:

1) When introverts and extroverts are grouped together, praise and blame are equally effective in motivating the work achievement of fifth-grade pupils. Either praise or blame is more effective in increasing the work output of fifth-grade pupils than no external incentives.

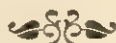
2) If repeated often enough praise increases the work output of introverts until it is significantly higher than that of introverts who are blamed or extroverts who are praised.

3) If repeated often enough blame increases the work output of extroverts until it is significantly higher than that of extroverts who are praised or introverts who are blamed.

The results of this study indicate that praise, as well as blame, can be used unwisely by the elementary-school teacher if he does not fully appreciate and understand the different personalities present in his classroom. Praise and blame should not be judged on an either-or basis, but should be used to fit the case.

Chapter Six

LEARNING: MAXIMIZING TRANSFER



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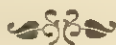
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ALBERT RAPP

The Experimental Background of the Problems of Learning

It is probably no exaggeration to say that both educational method and curriculum content are predicated on the assumption that the specific experiences that the child is having in the classroom will enable him to deal more effectively with *other, future* experiences. The psychologist's term for this educational profit is "transfer of training."

Professor Albert Rapp has provided a useful and delightfully written interpretation of the history of research in this area, and he offers his conclusions for education. This article can be read with another and perhaps even more valuable orientation: whether or not it was Rapp's intention, his statement can be evaluated as an attempt to communicate the findings and implications of transfer research to that group of educators whose educational methods most frequently have been criticized as overlooking these findings.



The underlying theory of education down to the beginning of the twentieth century was that known as the doctrine of formal discipline. This theory assumes that the mind is a single organ, and that by vigorous study and application its "fibers" may become toughened like a muscle, and as a direct result, one's "faculties" of memory, reason, attention, etc. may be strengthened and increased.

It was upon this foundation that the structure of the curriculum

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was raised and supported; and the curriculum therefore contained generous quantities of "disciplinary" subjects, such as Latin, Greek, and mathematics.

• This theory has been abandoned. But the story of its collapse and of the continuing effort to provide a scientific basis for learning, and the implications of some of the later experiments, are required reading for every classicist and every educator.

In 1890 William James, one of America's great teachers, was Professor of Psychology at Harvard College, where for 18 years he had been teaching physiology, philosophy, and psychology. James, like Socrates, was so big that he belonged to no school, but several schools may be said to have grown out of him. He anticipated in some respects both behaviorism and *Gestaltpsychologie*, though they are poles apart. He disliked psychological experimentation and felt it had certain weaknesses; yet his experiment on training the memory is considered the forerunner of all modern research on this subject. And, incidentally, James may be considered to have paved the way for American functionalism in modern education, though he himself was too broad to be classifiable in this school.

In 1890 Professor James decided to test out his suspicion that there is no such thing as "training the memory"—if the memory is good, it's good, but no amount of practice will make it better. This is believed to be the first experiment dealing with the problem of learning, or "transfer of training," as it is more technically called.

Now, whether there is a transfer of training from one field to another or whether there is not is a question that is vital to every person connected with education. Whole curricula hung in the balance, and others still hang; whole schools, I might add, and colleges. There is no corner of the world of education that might not be affected by the results of such an experiment.

Professor James started his classic experiment¹ by memorizing 158 lines of Victor Hugo's poem "Satyr" in the course of eight days. The time required was 131½ minutes. Then, for practice in memorizing he turned to Milton's *Paradise Lost*. He spent 20 minutes a day for thirty-eight days in memorizing Book I. The question now was: Did the practice obtained from memorizing Book I of *Paradise Lost* improve his ability to memorize French poetry? So, as the final part of the test he went back to Victor Hugo's "Satyr." How long *now* would it take him to memorize a second 158 lines?

(The last time he had taken $131\frac{1}{2}$ minutes.) He proceeded to work on the second 158 lines, and when he came to check the result, he found it had taken him $151\frac{1}{2}$ minutes. *Longer than* it had taken him before!

This didn't make any sense at all, unless we are to conclude that learning renders one increasingly stupid and progressively more unteachable, and James explained the results by saying that he was all fagged out at the time of his final test. Nevertheless, one may be excused for wishing that Professor James had not been fagged out in that one week of all weeks, so significant in the history of American education.

But James repeated the experiment on four students, using the same general method but different poetry. The results were inconclusive. Three showed slight improvement, one showed deterioration.

One of Professor James' students at Harvard later was a young lad by the name of Edward L. Thorndike. Thorndike in these days was spending his time experimenting on the behavior of chicks in a maze. Still later he went to Columbia and earned his Ph.D. (1898). In 1891 Thorndike, in collaboration with R. S. Woodworth, published a set of experiments.² This study is considered one of the most significant ever made on the problem of transfer of training; and it surely has been, I think, without any doubt, the most influential.

Thorndike took five individuals (six in some of the tests) and first tested all on their ability to estimate the area of large rectangles of 140 to 300 square centimeters. They then received intensive training in estimating the area of small rectangles of 10 to 100 sq. cm. until they became quite proficient in this. The question now was: Does training in one mental function improve one's efficiency in another closely related mental function? They were tested finally once again in their ability to estimate large rectangles. Similar tests were made in estimating weights, in estimating length of lines, in perceiving words containing certain letters, et cetera.

The results were revolutionary, almost incredible, and they delivered a stunning blow to the theory of formal discipline and the whole curriculum structure based on it. Mr. Thorndike found, for example, that training in estimating lines half-inch to one-and-one-half-inches long *transferred not in the slightest* to the estimating

of lines six to twelve inches. In some of the tests there was actually deterioration. In most there was improvement, but not much.

The logical conclusion seemed to be: that a person's ability to estimate half-inch lines is essentially independent of his ability to estimate six-inch lines. Surely, then, both have nothing in common with ability to estimate lines one foot long, one yard long, one hundred feet long, and so forth. There are therefore hundreds of separate "abilities" in the one matter of estimating lines, and training in any one of these does not carry over to any other—or hardly any. If it's true in this case, then it must be true all through every kind of learning.

The authors then proposed the well known "Theory of Identical Elements," even today the most influential theory on the transfer of training:

Training the mind means the development of thousands of particular independent capacities, the formation of countless particular habits, for the working of any mental capacity depends upon the concrete data with which it works. Improvement of any one mental function or activity will improve others only in so far as they possess elements common to it also. The amount of identical elements in different mental functions and the amount of general influence from special training are much less than common opinion supposes.³

Thorndike then proceeded to the logical physiological implications:

"By identical elements are meant mental processes which have the same cell action in the brain as their physical correlate."⁴

The picture then is "thousands of particular independent capacities," each of which must be developed by itself, if it is to be developed at all. And "that one ability is improved by the exercise of another only when the neurones whose action the former represents are actually altered in the course of the exercise of the latter."⁵

The results upon education were tremendous. Succeeding experiments tended to verify these conclusions, and the theory of identical elements became gospel among psychologists, and for the most part remains so to this day. The outcry of enraged conservatives tended only to invest the theory with the halo of an ideal, and to make a dogma out of what is merely a hypothesis.

Now in the curricula courses began to be multiplied without end or limit; for everything had to be learned separately. Latin and

Greek and mathematics, which had depended upon the arguments that they strengthened the mind, and that they created and solidified certain attitudes which carry over into life, found these arguments swept away. They toppled and fell. There was no longer any such thing as a "mind" or "the memory," and of course you could not strengthen what didn't exist. There were now countless separate "minds," and countless separate "memories." The concept "memory" had gone overboard.

At this point it should be emphasized that these are honest and sincere attempts to apply scientific experimentation to a new field. That a great deal in education does depend on what really constitutes the mind is obvious. Furthermore, the question will be settled not in a contest of ridicule, not in formal debate, but in the experimental laboratory. Therefore it is vital for us to be informed on these matters.

This was only a beginning. The movement toward particularization quickly spread into the field of personality. The line of argument was as follows. If training the mind means the development of thousands of particular independent capacities, and there is no general spread of training beyond that which is actually being taught, then surely training for honesty, bravery, neatness, or courtesy is a thousand separate trainings. You have to inculcate honesty separately in each separate type of situation. There can be no general trait of honesty, or of bravery or neatness or courtesy.

Succeeding studies contributed the coup de grâce. In 1905 W. C. Bagley published the following classroom experiment.⁶ For several weeks the arithmetic teacher in a certain school made a point of insisting upon neatness in the arithmetic papers. No mention was made of other papers; and the teachers of other classes made no such request. The result was: the arithmetic papers became much neater than before, but the other papers did not.

But the really monumental study is that of H. Hartshorne and M. A. May.⁷ This research is about the largest ever undertaken in the field of personality, and was conducted with great care and accuracy.

The authors started with the question: Is there a general trait of honesty? They took several thousand school children, mostly from the fifth to eighth grades, and put them through a number of test situations (unknown to them, of course). They were given opportu-

nities to be honest or dishonest in the classroom, in their sports, and in certain especially selected parlor games. After painstakingly summarizing and correlating the results, Hartshorne and May came to the conclusion that there was a very low correlation between a person's honesty in one thing and in another, and they therefore concluded that there is no general trait of honesty.

Now if there are a thousand particular independent neatnesses, and likewise for loyalty and open-mindedness and all other traits; and if all the desirable qualities, which one might get from contact with the great, are independent and specific and have no general application; and if all learning consists of thousands of particular independent activities, with no (or very little) spread or transfer to life; then where in the world is there any room for any learning that is not immediate and definitely practical?

This is exactly what a great many people are asking—people who accept the conclusions which point to “specificity,” people who accept the “compartmental” theory of learning, that there is little or no “transfer” or “spread.” These are now in the majority, but the fact is that a very important current in psychological experimentation is already started which is heading off into a quite different direction.

After Mr. Thorndike proposed his revolutionary theory of identical elements in 1901, he made two additions to it, both of which were intended to strengthen his position. For one thing, he gave it a physiological basis. The other turned out to be a sort of “escape clause,” used freely ever since to avoid the full implications of the theory. However, I do not think it was proposed for that reason, but because it seemed logical. I refer to his acceptance of general traits and attitudes as elements. For example:

The habit acquired in a laboratory course of looking to see how chemicals do behave, instead of guessing at the matter or learning statements about it out of a book, may make a girl's methods of cooking or a boy's methods of manufacturing more scientific, because the attitude of distrust of opinion and search for facts may so possess one as to be carried over from the narrower to the wider field.⁸

Now this addendum is incompatible with Mr. Thorndike's own theory: that training the mind means the development of thousands of independent capacities; and at one sweep gives back most

of the ground covered by his previous hypothesis. For, as P. T. Orata observes:⁹

The question at once arises, how the "attitude of distrust of opinion and search for facts" is transferred from a laboratory course to cooking or manufacturing. . . . Furthermore, automatic transfer of a habit from one situation to another is like formal discipline. It would be like saying that reasoning in mathematics is transferred automatically to reasoning in law.

And truly, if all the various traits that Thorndike accepts as elements are admitted as transferable—"esteem for truth wherever and however present," "knowledge of procedure," "regard for the scientific method," "attentiveness," and (of all things) "habituation to discomfort and fatigue"—if these traits and others like them are susceptible of transfer, then there is a very strong case even for formal discipline, and its champion is none other than Mr. Thorndike.

But wait. They are admitted as transferable, but *not much*. Not much. That is the unequivocal answer of a majority (I believe) of psychologists in the United States; of writers on the subject I am quite sure it is the majority viewpoint.

So we are back, not exactly to where we started, but not far from it. The question, it is true, is no longer, Is there any transfer of training from one situation to another?; but, Is there any, to amount to anything?

What do the tests show? Do they show little transfer, moderate transfer, considerable transfer? The plain answer is that the tests show everything. They show everything, from interference (negative transfer), to no transfer, little transfer, appreciable transfer, and considerable transfer.

The most extensive compilation of such tests, by the way, together with analyses and summaries, is to be found in the work of Pedro Tamesis Orata, a Filipino: *The Theory of Identical Elements*.¹⁰ Orata's treatment of the entire subject is objective and intelligent; and this work is important in the study of transfer.

Now although, to the best of my knowledge, the majority of experiments on transfer do show appreciable amounts of transfer; and although Orata's summary,¹¹ covering ninety-nine experiments between 1890 and 1927, shows that over 80 per cent of these indi-

cated "appreciable" or "considerable" transfer; nevertheless, it must be admitted that there is a wide variety and range of results. The question naturally arises: Why? Why, for example, did Thorndike and Woodworth find little or none?

The following classic experiment ¹² of C. H. Judd in 1908 threw a new and stronger light on the whole question.

The task was to throw a dart and hit a target under water. Two groups of boys ten to twelve years old were used as subjects. One group received preliminary instruction in the general principles of refraction. The other did not, and was left to work it out by experience. The two groups then began with the target twelve inches under water. Now, in the first series of trials the boys who knew the theory and those who did not gave approximately the same results.

At this point the conditions were changed: the target was placed under four inches of water. Now the difference between the two groups was striking. The boys without the theory were utterly upset. The practice they had gained at twelve inches helped not at all with four inches. Then it was changed to eight, and they were all confused all over again.

This experiment is one of the most important ever made on the subject of learning; and it led him and others to deny the theory of identical elements and to offer in its place a hypothesis of generalization. It showed too that specific training without generalized principles is worth very little: nothing at all except with reference to its one specific situation.

It showed the complete invalidity of the early experiments of Thorndike. It showed why to Thorndike the ability to estimate half-inch lines was independent of the ability to estimate six-inch lines. It showed how Thorndike had obtained such startling results, how he arrived at his theory of "thousands of particular independent capacities," and why Thorndike and others had found so little transfer. It explained the reason for the great diversity in results in the many transfer experiments. The boys without theory transferred not in the slightest, after all their practice, to a small change in the problem. The boys with theory did. Parenthetically, there are significant implications on the importance of good teachers, on the importance of formal education, and some suggestions on method.

In this same year (1908) W. C. Ruediger repeated the Bagley-

Squires classroom experiment of 1905 on the transfer of neatness, but with one significant difference: in addition to emphasizing neatness on the arithmetic papers, the general practice of neatness in all one's daily life was held up as an ideal, but no mention was made of any other course. Ruediger now found considerable improvement in neatness in other class papers—the improvement averaging 65 per cent of the amount of improvement in the subject specifically trained.¹³

Many other investigations followed, and have led to similar conclusions. One more might be mentioned as of particular interest, that of Miss Elsie Parker Johnson, of Oak Park High School, Illinois.¹⁴

Two carefully equated groups of students were used. One group was taught geometry "in the ordinary way." The second group was taught geometry, but was trained to use it "consciously, as a technique of logical thinking." The results were quite conclusive. Not only did the latter group soon surpass the former group in ability in geometry, but they also showed improvement in tests of non-geometric reasoning. In other words, mathematics can be taught in such a way as to develop the ability to think, *even along lines non-mathematical*. It all depends on the emphasizing of general principles. In the words of Ruger:

In general, the value of specific habits under a change of conditions depended directly on the presence of a general idea which would serve for their control.¹⁵

Or of Allport: ¹⁶

There is no need to multiply evidence. Time and again it appears that identical elements in themselves have no power to effect transfer. Only when a general principle is *understood as applicable* to two or more fields does the training in one carry over to the others.

"Is understood as applicable . . ." But this upsets everything. What, one is permitted to ask, is it that does the understanding? If transfer depends in part upon "cognitive grasp"—as even Robert Woodworth, collaborator in Thorndike's first experiments, seems ready to admit,¹⁷ then what mechanism is it that does the "cognitive grasp"-ing? *It* must be the brain, or at the least the most important part of it. Then what is it that we have been testing all this time?

The plain fact is, as I see it, that such phrases as "cognitive grasp" and "only when a general principle is understood as applicable"—though an important advance in our study—are a tacit admission that after all our labors the most important function of the brain, i.e. higher level coordination, has utterly eluded us.

Questions arise in great numbers. What is cognitive grasp? May not it be transferable? May it not even in the antediluvian patois of the old-fashioned disciplinarians be susceptible of being "toughened" or "strengthened" or "made flexible?" How does it operate physiologically?

Some day, we expect, experimenters will return with some of our answers. But for the time the situation is this: the theory of generalization has no generally acceptable physiological foundation. Its most important discovery, "cognitive grasp," sounds embarrassingly metaphysical and unscientific—not unlike trying to locate the soul, in the study of anatomy.

Mr. Thorndike, on the other hand, as we noted earlier, had provided his theory of identical elements with a logical and apparently sound physiological foundation:

The answer which I shall try to defend is that a change in one function is . . . in amount that due to the change in the elements common to it and the first. . . . By identical elements are meant mental processes which have the same cell action in the brain as their physical correlate.¹⁸

In the same organism the same neurone-action will always produce the same result.¹⁹

The general theory of identical elements—that one ability is improved by the exercise of another only when the neurones whose action the former represents are actually altered in the course of the exercise of the latter—is sound, and is useful in guiding thought.²⁰

This physiological hypothesis is known as the doctrine of isolated reflex conduction. It presupposes "neural grooves," or synapses, along which our reactions move. Learning, then, consists of breaking down the resistance along one or some of these routes; retention is the persistence of this modified situation. Since the condition of one synapse is not influenced by a change in others, there is no transfer to synapses or grooves not specifically involved. The conception is highly mechanical and departmentalized.

Two well-directed salvos put this theory almost completely out

of action, though its ghost goes merrily on—the experiments of Wolfgang Köhler, published in 1918, and those of Karl Lashley, published in 1929.

Köhler took two hens and put them in a coop. Just outside, but within reach, he put two pieces of paper, one light grey and one darker grey in color. Grain was scattered in equal amounts on both papers. Every time a hen reached for the grain on the light grey paper it was shooed away. Every time it reached for grain on the darker grey paper it was allowed to eat. After 400 to 600 attempts the hens got the point: they would select the dark grey, and avoid the other, even though the positions of the papers were frequently interchanged.

Next Köhler removed the lighter paper, but did not remove the dark grey, which they had learned to select. But he placed alongside it a still darker colored paper. Now the question was, Will the hens continue to pursue the *specific* stimulus they have been laboriously trained to pursue? Or will they respond to a relationship, and select a paper they had never seen before?

Köhler's results are conclusive and significant. Two hens trained to go to the darker (and two other hens trained to go to the light) responded to the light-dark relationship in 70 per cent of trials, and ignored the original positive stimulus.²¹

This experiment has been verified many times. It is significant because the "identical element" with which food was associated is actually abandoned, and somewhere even in the mind of a hen an abstract relationship is formed and is carried over from one situation to another.

In 1929 Karl S. Lashley published a small work entitled *Brain Mechanisms and Intelligence*.²² The experiments described therein, together with some earlier experiments of his, may turn out to be as important as any contribution to the study of learning since Edward Thorndike. The tests were conducted with meticulous care.

Mr. Lashley worked with groups of white rats. These were trained in a variety of problems, and their learning ability in these carefully noted. Carefully measured and located portions of the brain cortex were destroyed, in some cases after, in some cases before, their training.

Mr. Lashley's results, and his approach, are so important that this in its entirety should be required reading for anyone studying

the problem of transfer; and in the present confused state, nothing could be more salutary than the pursuit of further physio-psychological experimentation. For I suppose it is axiomatic that ultimately no theory of learning can stand unless it squares with the physiology of the organ or organs of learning.

To summarize only the more immediately pertinent of his results:

1. Evidence is adduced for what we might call a "dichotomy" in brain activity; that is, the mechanism involved in the formation of certain very simple habits seems to be different from that involved in the forming of complex habits. In other words, all of this time and through all this controversy, the various protagonists were referring to two quite different things when they used the term "learning."

2. Of these two, the simpler—e.g., the habit of connecting the presence of food with a light or a dark passageway, or other similar sensory discriminations—the capacity for this type of learning is not noticeably affected by the removal of a large part of the brain cortex, even if the entire sensory field concerned is removed. And this sort of learning habit once formed, is definitely localized (within the occipital part of the cerebrum); and the habit is lost by the removal of this area.

3. BUT, in more complicated learning, *all of the brain tissue is needed*. The lesion of any portion of the cortex reduces the capacity for this type of learning. It reduces it roughly in proportion to the amount of tissue destroyed. This reduction is brought about *without regard to the location of the tissue removed*.

Nothing could be clearer in its implications: *upper level integration is the function, not of isolated synapses or neural grooves, but of the brain working as a unit!*

Karl Lashley concludes:

None of the studies of learning or retention of the mazes after cerebral lesions has given the slightest indication that the maze habit is made up of independent associational elements. There was never amnesia for one part of the path with retention of another (except that the habit of manipulating doors, once acquired, was never lost.) . . . The diversities of the behavior . . . corresponded somewhat with the magnitude of the lesion, but not at all with the locus.²⁸

If learning is restricted to particular synapses there can be no influence of training upon other activities than those actually practiced; any improvement in unpracticed functions must be the result of nervous connections which they have in common with the practiced activities. The rejection of doctrines of formal discipline seems to have been based far more upon such reasoning than upon any convincing experimental evidence. . . .

There is no evidence to support this belief in identity of nervous elements. On the contrary, it is very doubtful if the same neurons or synapses are involved even in two similar reactions to the same stimulus. Our data seem to prove that the structural elements are relatively unimportant for integration and that the common elements must be some sort of dynamic patterns, determined by the relations or ratios among the parts of the system and not by the specific neurons activated. If this be true, we cannot, on the basis of our present knowledge of the nervous system, set any limit to the kinds or amount of transfer possible or to the sort of relations which may be directly recognized.²⁴

Where does the matter stand at present? These are the answers, to the best of my knowledge:

1. Can the mind as a whole be strengthened? Nobody knows. I mean, nobody knows. Nobody knows that it can. Nobody knows that it cannot. Pending clarification of the problem it would be more scientific not to claim that any given subject strengthens or toughens the mind.

2. May attitudes and methods, developed in one course, transfer to other courses and other situations? They may. This is generally accepted, and it represents an important argument for the classics. For, obviously, the attitudes which will be necessary in the severer competitions of life may therefore be attained in the classroom, and they cannot be acquired in the softer disciplines.

3. Do such attitudes and methods *necessarily* transfer? They do not. It is quite possible, then, for a teacher (for example, of Latin) to inculcate thoroughly such habits as "willingness to face a difficult problem," "knowledge of procedure," "distrust of opinion and search for facts," "unwillingness to admit defeat"—verily a potent armory in the battle of life—only to find that the student identifies these with one particular field and does not take advantage of them elsewhere.

4. How can one tend to insure such transfer? Conscious generalization seems to be the answer. The attitudes and methods, while being formed, must be generalized, and the necessity of their application throughout life must be emphasized.

5. Are there other transferables? Yes, the accumulated body of facts and theories and general laws, which is passed on through education. These are transferable (subject to the laws of forgetting) in the sense that they are later available in other situations. These situations must be similar and recognized as such. Here lies the contribution of the classics to the student of English and the other modern languages, to the student of modern art and modern history and religion and philosophy; also (this has not been emphasized sufficiently) to the student of modern life, by providing the means of attaining perspective. But here, I repeat, not only must the situations be similar (as we know they often are) but *the student must be trained to recognize them as such*.

6. Is the amount of transfer from school subjects great or small? The amount of transfer is potentially quite great, but actually only moderate. However, even if it were small but persistent, it would be very valuable. Thorndike admits this:

Finally it must be remembered that a very small spread of training may be of great educational value if it extends over a wide enough field. If a hundred hours of training on being scientific about chemistry produced only one hundredth as much improvement in being scientific about all sorts of facts, it would yet be a very remunerative educational force.²⁵

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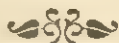
- 1 William James, *The Principles of Psychology*: New York, Henry Holt (1890), 1, 667.
- 2 *Psychological Review*, VIII (1901), 247-261, 384-395, and 553-564.
- 3 E. L. Thorndike, *Principles of Teaching*: New York, A. G. Seiler (1906), 248.
- 4 E. L. Thorndike, *Educational Psychology*: New York, Teachers College of Columbia University Press (1913), II, 359.
- 5 *Ibid.*, II, 417.
- 6 W. C. Bagley, *The Educative Process*: New York, Macmillan Co. (1905), 208.
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- ⁸ E. L. Thorndike, *Principles of Teaching*: New York, A. G. Seiler (1906), 245.
- ⁹ P. T. Orata, *The Theory of Identical Elements*: Columbus, Ohio State University Press (1928), 17.
- ¹⁰ Columbus, Ohio State University Press (1928).
- ¹¹ *Ibid.*, 41.
- ¹² *Educational Review*, xxxvi (1908), 28-42.
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- ¹⁹ *Ibid.* (1913), I, 7.
- ²⁰ *Ibid.* (1913), II, 417.
- ²¹ W. Köhler, *Abhandlungen der Preussischen Akademie der Wissenschaft*, XLIX (1918).
- ²² Chicago, University of Chicago Press (1929).
- ²³ *Ibid.*, 141.
- ²⁴ *Ibid.*, 172f.
- ²⁵ *Educational Psychology*, II (1913), 421.

GORDON HENDRICKSON AND
WILLIAM H. SCHROEDER

Transfer of Training in Learning to Hit a Submerged Target

Early in the present century, Charles H. Judd conducted what became one of the most widely known experiments in educational psychology. The findings led him to his "theory of generalization," which states that learning transfers through the formation of generalizations. Professors Gordon Hendrickson and William H. Schroeder have conducted what is essentially a repetition of Judd's experiment, with some valuable modifications. The changes in procedure seem to improve the original design, and the additional experimental group used here yields some new and suggestive data.



The present study was undertaken to afford a general check upon the early study of transfer of training by Scholckow and Judd.¹ In that experiment, fifth- and sixth-grade boys threw darts at a target placed at different depths under water. The results have been widely quoted as important to the theory of transfer of training by generalization.

The intent has been to attack the same problem, and in a fashion essentially similar, but no claim is made that the experi-

¹ Judd, C. H.: "The Relation of Special Training to General Intelligence." *Educational Review*, Vol. xxxvi, 1908, pp. 28-42.

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mental conditions duplicate those of the earlier study. Available accounts of this study, including the original report published by Judd in 1908, are not adequate to permit a perfect duplication, or to afford a detailed comparison of results. Furthermore, certain variations in the procedure have been purposely introduced to secure a wider variety of evidence on the problem.

INVESTIGATION BY SCHOLCKOW AND JUDD

The study described by Judd was intended to show the relation between knowledge of a principle and practical behavior in a situation to which the principle applies. The subjects were two groups of boys, of fifth- and sixth-grade school status, equated on the basis of teachers' judgments as to their brightness. The boys were required to throw a small dart at a target placed under water. Judd's account of procedure and results follows:

In this experiment one group of boys was given a full theoretical explanation of refraction. The other group of boys was left to work out experience without theoretical training. These two groups began practise with the target under twelve inches of water. It is a very striking fact that in the first series of trials the boys who knew the theory of refraction and those who did not, gave about the same results. That is, theory seemed to be of no value in the first tests. All the boys had to learn how to use the dart, and theory proved to be no substitute for practise. At this point the conditions were changed. The twelve inches of water were reduced to four. The difference between the two groups of boys now came out very strikingly. The boys without theory were very much confused. The practise gained with twelve inches of water did not help them with four inches. Their errors were large and persistent. On the other hand, the boys who had the theory, fitted themselves to four inches very rapidly. Their theory evidently helped them to see the reason why they must not apply the twelve-inch habit to four inches of water.²

The number of subjects, details as to the apparatus, the verbal instructions given the tutored group, and the quantitative results were not reported.

² *Ibid.*, p. 37.

PRELIMINARY INVESTIGATION OF TECHNIQUES

In an effort to duplicate as nearly as possible the work of Judd and Scholckow, attempts were made to throw a feathered dart at a target under water. The dart used was of hardwood with a steel point, the feathers being waterproofed with collodion. A bath tub served as tank. Certain difficulties were at once apparent. (1) A strong tendency was found for the dart to ricochet from the surface of the water. (2) Successful penetration of the water and subsequent removal of the dart disturbed the surface of the water so greatly as to require considerable time between throws. (3) The dart itself proved difficult to control as to direction. There was no certainty that the dart would travel in the direction desired.

In view of these difficulties, comparative evidence was secured for dart-throwing and a function believed to be similar; namely, shooting an air gun. Thirty-four boys, selected from those serving as subjects in the later experiment, made a total of thirty-four hundred dart-throws towards a circular target of seven inches diameter at a range of eight feet. Fifteen hundred and twenty throws missed the target. On the other hand, only four air gun shots out of four hundred twenty, made by forty-two of the subjects, missed a circular target of 3.4 inches diameter at a range of fifteen feet. It was further found that the shot penetrated the surface of the water easily and disturbed the surface but slightly. The use of feathered darts was accordingly abandoned as impracticable. It was concluded that the air gun would serve adequately the chief purposes of this study.

DESCRIPTION OF EXPERIMENT

Ninety boys in the eighth grade of a suburban junior high school served as subjects in the experiment. Each was assigned to one of three groups of equal size, designated as: Control group, Experimental Group *A*, and Experimental Group *B*. Table 1* shows the mean age of each group to be about fourteen years, and the mean percentile rank for intelligence as measured by the Otis Group Intelligence Scale, to be about seventy. Marksmanship was not tested

* [Table omitted.]

for all subjects in advance of the experiment, but the preliminary experimentation had shown only negligible differences in this regard between two groups of twenty-one boys each, closely matched in age and intelligence (mean distance from center of target, for one group, at a range of fifteen feet, was .65 inch; for the second group, .59 inch).

The air gun (unrifled) was a fifty-shot repeater, firing copper-plated steel BB shot with sufficient force to penetrate the depths of water used and still retain enough velocity to perforate a cardboard target. Standard rifle targets were used, held in a horizontal position in a galvanized iron mounting. The tank was a twenty-gallon tub of galvanized iron, with a bottom diameter of twenty inches, a top diameter of twenty-four inches, and a depth of eleven inches. The subjects fired from a platform eighteen inches high, at a distance of eight feet from the center of the target. The elevated position of the marksman assured that the tank would not obscure part of the target. The subjects used the door frame of the laboratory as a rest while shooting. The experimenter recorded each hit as it was made.

All of the work was done outside of school hours. The subjects participated with enthusiasm in what they regarded as a uniquely desirable activity. Each boy was warned not to give any other boy any clue as to how to hit the bull's-eye. The strong flavor of competition is believed to have been adequate to prevent direct instruction of one subject by another. Three or four boys served as subjects during one period, but each one worked in private.

On the basis of the preliminary work, shots falling in the bull's eye or the ring next to it in the rifle target were regarded as successful. This allowance was found sufficient to guarantee that at the close range used success would be attained as soon as the subject knew where to aim. The mean distance from the center of the target for four hundred twenty shots (ten shots each by forty-two boys) fired at a range of fifteen feet was .62 inch, with a mean deviation of .31 inch. At eight feet the mean error might be expected to become .33 inch, and the mean deviation .17 inch. The "zone of success," on the other hand, was bounded by a circle with a radius of .69 inch.

At the same time, the amount of refraction at the depths employed (six inches and two inches) was great enough so that a boy who aimed at the bull's-eye where it appeared to be was practically certain to miss it by a sizeable margin. For a boy of average height

(sixty inches), the position from which he viewed the target was such that the angle of incidence for his line of vision and the surface of the water was fifty-one degrees. At this angle the apparent displacement of the target was 3.11 inches when the water was six inches deep, and 1.04 inches, when the water was two inches deep.

PROCEDURE FOR CONTROL GROUP

As each of the thirty boys constituting the Control group entered the laboratory, he was shown where to stand and told that a record was to be kept of the number of trials necessary before he made three consecutive hits in either the bull's-eye or the ring next to it. The first of these three successful hits was recorded as the one at which mastery of the problem was reached. Two problems were set for each subject, the first with the water at the depth of six inches, the second with the depth of the water changed to two inches. The subjects were required to satisfy the criterion of three consecutive successful hits for the first problem before undertaking the second.

PROCEDURE FOR EXPERIMENTAL GROUPS

For each of the experimental groups, conditions and requirements for the control group were duplicated, with one addition. This was the provision of an elementary explanation of the theory of refraction, which each subject was permitted to study until he declared that he understood it. He was not, however, allowed to ask questions. For group *B* the explanation was identical with that for group *A*, except that one sentence was added. This sentence specifically called attention to the fact that changing the depth of water changed the amount of the refraction. Following is the complete explanation, which was accompanied by Figure 1:

EXPLANATION OF REFRACTION, AS PROVIDED FOR GROUP A

Everything we see is visible because light comes from it to our eye. Objects under water, when seen from above, do not appear in their true positions. Thus, in the diagram, the rock at *A* seems to be at *B*.

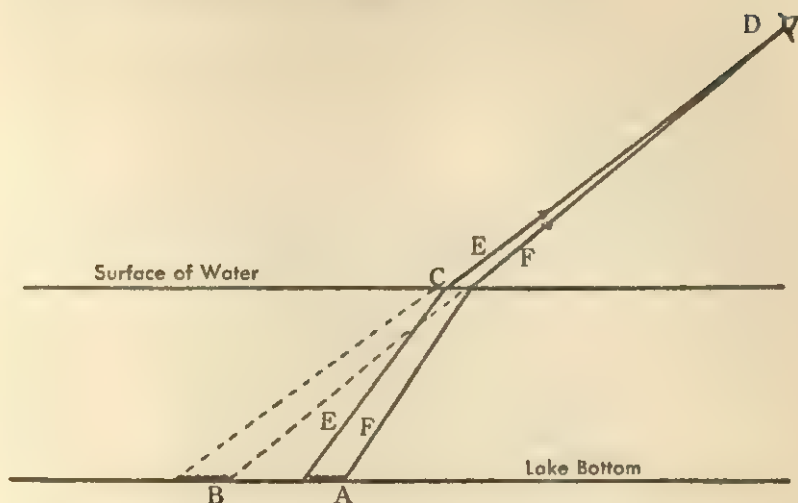


FIGURE 1. Diagram illustrating explanation of refraction.

This deception is caused by the refraction, or bending, of the light beam ACD at the surface of the water. The light rays are bent because light moves faster in air than it does in water. The side of the beam marked E escapes from the water before the side marked F reaches the air. Therefore, side E gets ahead of side F and the ray of light is actually bent.

We are not used to light rays being bent. Consequently, we suppose that the stone lies in a straight line from our eye, and we make the mistake of thinking that it is at point B .

Added Explanation for Group B.—It is easy to see from the diagram that the deeper the lake is, the farther the real rock A will be from the image rock B .

RESULTS FOR FIRST PROBLEM

Tables II and III present the major results for the first problem, that of learning to hit the target at a depth of six inches. Both experimental groups learned more rapidly than the control group, and group B learned more rapidly than group A . It will be recalled that Judd reported that in the first trials the boys who knew the theory and those who did not "gave about the same results." In the

TABLE II

TRIALS REQUIRED FOR MASTERY OF FIRST PROBLEM (DEPTH SIX INCHES)

| <i>Group</i> | <i>Mean</i> | <i>SD</i> |
|-----------------------------|-------------|-----------|
| Control | 9.10 | 5.23 |
| Experimental group <i>A</i> | 8.50 | 4.08 |
| Experimental group <i>B</i> | 7.73 | 3.51 |

present study, not only did theory seem to be of value in the first trials, but the addition of a few words to the explanation measurably increased the apparent value of the theoretical information.

TABLE III

GROUP DIFFERENCES FOR FIRST PROBLEM (DEPTH SIX INCHES)

| <i>Groups compared</i> | <i>Difference between groups</i> | <i>SD difference</i> | <i>Critical ratio</i> | <i>Chances in 1000</i> |
|------------------------|----------------------------------|----------------------|-----------------------|------------------------|
| Control — <i>A</i> | .60 | 1.21 | .49 | 688 |
| <i>A</i> — <i>B</i> | .77 | .98 | .79 | 785 |
| Control — <i>B</i> | 1.37 | 1.15 | 1.19 | 883 |

The differences in the rate of learning between the three groups on these first trials are not of high statistical reliability (Table III), perhaps because the groups were small. The differences for the two experimental groups are, however, in the same direction.

RESULTS FOR SECOND PROBLEM

Precisely parallel differences are found in the data of Tables IV and V, for the second problem, that of learning to hit the target at a depth of two inches. Here the differences are in keeping with the differences reported by Judd, although the degree to which the instructed subjects (group *A* and *B*) surpassed the uninstructed (the Control group) appears to have depended upon the explicitness of

TABLE IV

TRIALS REQUIRED FOR MASTERY OF SECOND PROBLEM (DEPTH TWO INCHES)

| <i>Group</i> | <i>Mean</i> | <i>SD</i> |
|-----------------------------|-------------|-----------|
| Control | 6.03 | 2.62 |
| Experimental group <i>A</i> | 5.37 | 2.28 |
| Experimental group <i>B</i> | 4.63 | 2.08 |

the theoretical explanation, as may be seen from the fact that the scores for group *B* were lower than those for group *A*. Table V indicates that the differences are somewhat more reliable than those for the first problem.

TABLE V
GROUP DIFFERENCES FOR SECOND PROBLEM (DEPTH TWO INCHES)

| <i>Groups compared</i> | <i>Difference between groups</i> | <i>SD difference</i> | <i>Critical ratio</i> | <i>Chances in 1000</i> |
|------------------------|--|--------------------------|---------------------------|----------------------------|
| Control — <i>A</i> | .66 | .63 | 1.05 | 853 |
| <i>A</i> — <i>B</i> | .74 | .56 | 1.32 | 907 |
| Control — <i>B</i> | 1.40 | .60 | 2.34 | 990 |

TRANSFER FROM FIRST TO SECOND PROBLEM

It is to be regretted that no numerical data from Judd's experimentation are available. The account quoted appears to imply that transfer, as measured by improvement from the first to the second problem, took place only for the instructed group. In the present study, transfer, in the sense of improvement, occurred both with and without tuition, and in amounts not greatly differing for the three groups. Table VI shows a mean gain of 3.1 trials for each group, the relative gain being greatest for group *B*, the boys given the most complete explanation.

TABLE VI
SUMMARY TABLE SHOWING IMPROVEMENT FROM FIRST PROBLEM
TO SECOND PROBLEM

| <i>Groups</i> | <i>Mean of trials required</i> | | <i>Gain in trials</i> | <i>Percentage of improvement</i> |
|-----------------------------|------------------------------------|------------------------|---------------------------|--|
| | <i>At 6 inches</i> | <i>At 2 inches</i> | | |
| Control | 9.10 | 6.03 | 3.07 | 34.1 |
| Experimental group <i>A</i> | 8.50 | 5.37 | 3.13 | 36.5 |
| Experimental group <i>B</i> | 7.73 | 4.63 | 3.10 | 40.3 |

The task of learning to hit a submerged target appears to be in the field of motor learning, and the original study generally has been interpreted as belonging to this category. However, Judd's re-

port indicates little concern with motor skill but instead, an interest chiefly or solely in the learner's adaptation to the principle of refraction. In the present study the motor skill element is negligible—the real problem is to discover where to aim. Once a boy made this discovery, he had no difficulty in meeting the criterion for successful performance. This statement is supported by the fact that many of the boys in each group made such significant remarks as, "I see the catch," "I got it now," and the like.

INDIVIDUAL DIFFERENCES

Within each group there were large individual differences in the speed with which the boys "saw the trick," as indicated by the standard deviations reported in Tables II and IV. Two boys in the control group, one in group *A*, and one in group *B* solved the first problem at the first shot. It seems probable that these boys knew they could not hit the bull's-eye by aiming at it, made a lucky guess, found themselves successful, and repeated. On the other hand, twenty or more shots were required for the solution of the first problem by two boys in the control group, one in group *A*, and one in group *B*. These boys took a long time to discover where to aim. In fact, they probably took a long time to discover that aiming at the apparent position of the bull's-eye would not bring success. Once this discovery had been made, it was not hard to find that the place to aim was below the bull's-eye.

POINTS OF DIFFERENCE FROM STUDY

BY SCHOLCKOW AND JUDD

Certain differences in findings from the early study reported by Judd have been noted. In view of these differences, it should be emphasized that the present study does not claim to duplicate the details of the earlier one, but merely to make a fresh attack upon the same problem in a comparable manner. It would manifestly be impracticable to repeat the earlier study, in view of the limited accounts of it that are available.

The following factors may account in part or in whole for differ-

ing findings: (1) The skill studied was changed from throwing a dart to shooting an air gun. (2) The subjects were probably from two to three years older than in the earlier study. (3) The explanation of refraction may have taken a different turn. Evidence has been presented to show that a slight change in this explanation may affect results. (4) Other phases of experimental procedure may have differed. (5) The extent to which motor learning was a factor may have varied. If in the earlier study the subjects had to learn to throw darts as well as to adapt to refraction, the task was a more complex one than that set for the subjects of the present investigation. (6) In part differences may be due to chance. The number of cases in the earlier study is not known, and measures of reliability were not commonly reported at that time. The reliability of the present results is greater than "mere chance," but less than "practical certainty."

SUMMARY AND INTERPRETATION

(1) Under experimental conditions similar to those in the original Scholckow and Judd study, knowledge of theory was found to facilitate transfer. In this respect the original findings were confirmed.

(2) However, theoretical information was of aid not only in transfer from one situation to another, but also in making the original adjustment to the first situation. This result is in contrast to findings reported in the earlier work.

(3) The definiteness or completeness of the theoretical information had a direct effect upon both initial learning and transfer. Even in as simple a problem as that presented to the subjects of this study, it is clearly important for a teacher to consider carefully the adaptation of any theoretical statement to the specific needs of the learner. In the original investigation the influence of the precise form of the theoretical explanation seems to have been disregarded.

(4) In the present study the importance of individual discovery of the solution—of the emergence of a sudden insight, in Gestalt terms—is apparent. In each group and for each problem the typical boy worked unsuccessfully for a time, then quite abruptly reached a solution. The appearance of this moment of discovery undoubtedly

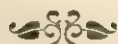
was hastened in many cases by the theoretical explanations provided for the experimental groups.

(5) On the other hand, the large individual differences within each group and the consequent overlapping of the various groups in speed of learning suggest that success in the type of problem presented is probably conditioned by other factors in addition to knowledge of a theoretical principle as formulated by a teacher. Such additional factors may include fluidity and variability of behavior when faced by a problem, a habit of verifying one's judgments, and the ability to formulate a general principle for oneself.

LLOYD G. HUMPHREYS

Transfer of Training in General Education

This article, like that of Professor Rapp, presents an interpretation of the literature on transfer of training. Here, however, the focus is on the problems of general (nonspecialized) education. Many educators share Dr. Lloyd G. Humphreys' contention that Thorndike's "identical elements" theory and Judd's "generalization" theory are not in necessary conflict in their implications for educational practice.



The expected outcomes of education do not always materialize. Time spent in training seems wasted when students are asked to use their learning in new situations. A group of children are taught multiplication combinations by rote alone. They later have great difficulty in utilizing their multiplication skills in long division. The graduates of a course in English literature, supposedly designed to promote literary appreciations, show no increase in either the quantity or the quality of their reading in comparison with their pre-course status. A Sunday-school teacher believes that she is engaged in moral training. Her charges acquire a great deal of biblical information, but there is no observable effect on their moral behavior. The information is also rather quickly forgotten. An instructor believes that his language course sharpens the intellect, but no gen-

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eralized intellectual advantage can be observed in comparing his students with those of initially comparable ability who have had no language training. The claimed function of a laboratory course in physical science is to teach the scientific method. Not only does there seem to be no carry-over by the students to biological science or social science, but the skills and attitudes acquired are more those of the technician than of the scientist. It is claimed that geometry increases logical reasoning ability. The only measurable outcome of a traditional geometry course, however, is an increase in the ability to solve problems in geometry.

These problems are known in psychology as "transfer-of-training" problems;¹ they were selected to dramatize the issue, since in each case someone expected transfer that did not occur. All of us make similar assumptions, either implicitly or explicitly, concerning possible transfer effects from our courses. Few of us attempt to check the validity of those assumptions. We need to know, first, whether transfer is possible in situations such as those described. Second, if transfer is possible, we need to know how to maximize it.

Questions such as the following pose similar problems: Does the usual music-appreciation course actually produce a change in the student's appreciation of music? If not, what can be done in the course to produce the desired change in student behavior? Do foreign-language courses promote international understanding? What are the transfer effects to later civilian status of compulsory military training for eighteen-year-olds? If these effects are undesirable, how can we change military training to promote desirable democratic objectives and still maintain our national security? How can we teach the graduates of our schools, as citizens of a democracy, to make intelligent choices concerning control of atomic energy, anti-vivisection legislation, protective tariffs, treatment of minorities, etc.?

¹ The writer has not attempted to document each point made in this paper, but, rather, has presented his interpretation of a fifty-year literature of many titles. The interested reader is referred to the following general sources: E. R. Hilgard, "The Relation of Schools of Psychology to Educational Practices," *California Journal of Elementary Education*, VIII (1939), 17-26; J. A. McGeech, *The Psychology of Human Learning* (New York: Longmans, Green & Co., 1942); A. I. Gates and others, *Educational Psychology* (New York: Macmillan Co., 1949); and National Society for the Study of Education, *Forty-first Yearbook*, Part II: *The Psychology of Learning* (Chicago: University of Chicago Press, 1942).

Definitions and Assumptions

Before attempting to state the principles, derived from experimental data, which would be used to explain why the expected transfer did not take place in the first group of illustrations or which would be used to predict outcomes where answers are not presently known, it will be useful to state important definitions and assumptions. Psychology has a technical terminology that has largely been borrowed from popular usage. As a consequence, misunderstandings easily result.

Psychologists use the term "training" in the transfer literature as synonymous with "learning." The latter term includes the changes in skills, attitudes, feelings, emotions, knowledge, perceptions, ideas, etc., that are the relatively stable result of experience.² Many psychologists today might include all these different kinds of learning in the phrase "changes in behavior," but in so doing they would not restrict themselves to the Watsonian behaviorism of the twenties. The term "behavior" includes all the psychological functions of the organism.

Other definitions of training are possible. For some educators, training means narrow, vocationally directed learning. These individuals use "education" as a broader term which includes much more than vocational training. Psychologically, however, "training" has developed into a broader term than "education," including both the latter and the informal, incidental learning that takes place, for example, in the neighborhood, school, and office. A "training situation" is one in which learning takes place.

By "transfer of training" we mean the influence of past training in a new situation which differs from the original training situation. The situation in which the influence of past training is to be tested can be called the "transfer" or "test situation." Differences between training and transfer situations vary from great to small. The direction of the influence of past training can be either negative or positive, either inhibitory or facilitory. The influence of past training in the new situation, or the "transfer effect," can vary in amount from zero to a positive amount equivalent to the effects of

² Temporary changes such as those due to fatigue, boredom, and warming up are, of course, excluded from learned changes.

direct training on the transfer task. A maximum amount for negative transfer is more difficult to specify.

An interest in transfer of training is not synonymous with an interest in vocational education. The personal or social desirability of the behavior in transfer situations is an educational and social, but not a psychological, problem. Determination of the facts concerning transfer, for example, how much and under what circumstances, is a psychological problem. The development of generalizations to fit these facts and the prediction of new facts from these generalizations is also a psychological problem. Transfer is an issue whether the objectives of training are vocational or liberal, specific or general, attitudinal or informational. Given a set of objectives for education, the development of techniques of training, including both method and curriculum, that will produce the desired behavior to the highest degree and with the broadest transfer possibilities is a problem that can best be solved by the co-operation of the specialist in subject matter and the psychologist.

While educational objectives are not an issue in the science of psychology, individual psychologists have the right of any faculty member, or citizen, to favor certain objectives. The present writer, for example, is seriously concerned about general or liberal education. He believes that both students and the general public typically overstress vocational goals. He further believes, however, that much of the curriculum that was important several hundred years ago in promoting a liberal education is perhaps outmoded. We should consider the problems of liberal education from the point of view both of modern needs and of knowledge of learning and transfer principles.

HISTORY OF THE TRANSFER PROBLEM

Formal Discipline

The history of the transfer problem usually starts with the doctrine of formal discipline. This doctrine is unusual, since the facts of transfer that the theory was supposed to explain did not exist. Under the circumstances it would hardly seem to warrant attention. Discussion is indicated, however, because at one time the theory was

so strongly intrenched and because remnants of it are still with us today.

Mind was considered to be composed of many faculties, of which reasoning and memory are appropriate examples. Faculties were strengthened by exercise, as muscles are strengthened by exercise. Since the most difficult subjects provided most exercise, Latin, Greek, and mathematics were, therefore, the most desirable subjects in the curriculum and could be used for both vocational and liberal-arts training. Some of the more biologically oriented theorists suggested that these faculties were localized in the cerebral hemispheres. Furthermore, if a given faculty were a prominent aspect of an individual's personality, the corresponding brain area would be found to be enlarged. A few individuals took the additional step of assuming that these enlargements would affect the cranium. Thus we find a tie between the doctrine of formal discipline and the pseudo-science of phrenology.

Educators such as Eliot and psychologists such as William James had begun to suspect the validity of the formal-discipline doctrine before the end of the nineteenth century. The hypothesized faculties were suspect, and the physiological basis of the faculties had been completely overthrown. Then, around the turn of the century, Thorndike and his co-workers began making the direct measures of transfer effect that have proved to be most damaging to formal-discipline notions. In general, it has been found that no learning activity has any widespread mental disciplining power. In a typical experiment two groups of subjects are matched in terms of initial ability; both groups are trained similarly except for the experimental variable, e.g., Latin is taught one group, shop is taught the other; both groups are given a reasoning (or memory) test at the conclusion of training; little, if any, difference in final ability is discovered.

Experiments similar to the one described above have brought to light an important function served by the classical curriculum that undoubtedly confused early thinkers about transfer. If students are not carefully matched for initial ability, a difference in both initial and final ability is typically discovered. The initial difference in aptitude between those who have taken Latin and those who have taken shop is explained in terms of the self-selection that goes on in the choice of a curriculum and in terms of the greater elimination

rate of students in classics who have low reasoning ability. All difficult academic subjects serve as valid selection devices for later educational or occupational placement, though this function is served quite inefficiently today in comparison with the results obtained in a few hours from the use of available aptitude tests.

Identical Elements

Thorndike, after showing the lack of disciplining effect of traditional academic subjects, was still able to demonstrate the existence of transfer in limited areas. He suggested that transfer took place when there were identical elements between the training and the transfer situations. More recently this statement of the basis for transfer has been called the "identical-components theory" in order to avoid criticism directed at the atomistic, specific stimulus-response connotations of the original expression. Since there is no compulsion to consider the problem atomistically, the change in terminology is valid. At the same time, the major emphasis of the theory remains the same.

Thorndike's contribution led to educational conclusions similar to the following: If you need accounting in your occupation, study accounting during your training and preferably the type of accounting you will need. If you want to read Cicero in Latin, by all means study Latin. If, however, you want to learn French, do not spend several years in the study of Latin, since you will be farther ahead if you concentrate on French. If you want to learn to solve social problems, spend your time in the social sciences, not in the study of geometry. If classroom activities resemble the work of a laboratory technician, the habits acquired will be those of a technician. It is sufficiently difficult to teach scientific methodology in a single science that to attempt to teach it in a physics class as a behavioral trait is hardly feasible.

Examples such as the above could be continued indefinitely. The indicated transfer is narrow in scope but, in terms of predictable outcomes, is still a sound basis for curriculum planning and instruction. More recent research has indicated that certain modifications have to be introduced, modifications that lead to a little more generality in transfer, but thinking about transfer problems in terms of identical elements should not be discarded. The argument that

Thorndike's theorizing contributed to the utilitarian movement in American education is not critical. This was not a necessary consequence of the theory but resulted, instead, from the increasing importance attached by the public and certain educators to vocational objectives. The above examples indicate that the theory applies equally well to other educational objectives. Specifically, if literary appreciations constitute a desired out-of-class outcome of the educational process, then the in-class activities must involve similar behaviors.

Generalization

Increasing dissatisfaction with the identical-elements theory as more transfer data became available led to the development of additional principles to account for the results. At times, particularly in the realm of attitudes, more widespread transfer was obtained than might have been expected from the limited, original interpretation of the identical-components theory. At other times—e.g., the failure of multiplication skills to transfer to the solution of long-division problems—less transfer was observed than might have been expected from an objective analysis of the identical components involved.

A widely quoted experiment by Judd is pertinent here. One group of subjects was given instruction concerning the refraction of light. A second comparable group, serving as controls, had no theoretical instruction. Both groups were given practice in aiming a dart at an underwater target. Neither group exhibited any superiority in original learning. Then the depth of the target was changed. The group given the principle of refraction was now clearly superior to the control group on the transfer test. Judd reasoned that an analysis in terms of identical perceptual-motor components was inadequate. He stated that transfer took place when appropriate generalizations had been formed.

The Gestalt psychologists have talked about what is essentially the same phenomenon as that studied by Judd in terms of the meaningful organization of learning. Such learning, in their terminology, transposes or transfers more readily than material learned in meaningless, rote fashion. When multiplication is taught by methods that stress the meaningful order of the arithmetic processes, considerable transfer results. The introduction of principles in the teaching of

spelling results in better spelling, including greater transfer to the spelling of new words than can be obtained following the use of the rote methods.

Other general factors that promote transfer are habits of work, methods of attacking problems, and motivation to find transfer possibilities. All involve more than identical components as originally used and defined by Thorndike, but they supplement rather than supplant the earlier theory. Transfer possibilities for specific subject-matter learning are broadened by taking into account this more recent theorizing, and the problem of curriculum selection is lessened by the decreased emphasis on specificity, but observed transfer effects are still small in comparison with the unsubstantiated beliefs of the adherents of formal discipline.

Common Elements in Current Theories

Psychologists of all points of view reject transfer claims that represent formal-discipline notions. The latter beliefs frequently show up today, at times using the same terms that were popular a hundred years ago, at times disguising the formal disciplinary claims in new terms, but no evidence has been presented to back the beliefs. Psychologists feel that, while some matters are properly in the sphere of belief, principles of learning and transfer are just as properly the subject of quantitative, scientific inquiry.

All theories of transfer also require sound initial learning. There is nothing in the transfer literature to suggest that schools should ease up or that instructors should require less work. Objections to a curriculum composed primarily of Latin, Greek, and mathematics are not based on the difficulty of the subjects or the high standards of teachers of these subjects. The important objection is that the supposed benefits are not obtained by the students.

APPLICATIONS TO EDUCATIONAL PROBLEMS

The Study of Language

Two statements can be made dogmatically about the study of any language. First, there will be no sharpening of intellect, no in-

crease in reasoning ability, no increase in memory ability. Second, if a student needs to know the language, he must, of course, study the language. The position of language instruction in special education is secure. For possible outcomes of interest in general education, the amount of transfer is less certain, particularly when the cost in time is considered.

To take an example, analysis of the Latin and English languages indicates that there are identical elements in vocabulary and grammar. There are also possible elements in common between Latin and ancient history. Can we expect transfer in these areas? In answering this question, we recall the multiplication-long-division example. The expected transfer will not take place unless the identical components as seen by the instructor are made meaningful to the students. The teacher, in other words, has to teach English vocabulary, English grammar, and ancient history along with Caesar and Cicero.

Practice in translating any language into English may well have an appreciable effect on the student's skill in English composition. We would expect more transfer from translation in the indicated direction than from translation of English into the foreign language. We would also expect more transfer in this area if stress is placed on idiomatic English translations.

The skeptic may ask at this point whether perhaps greater gains for the majority of students in these areas can be made by the use of some more direct medium than a second language. After all, the mere demonstration of desirable transfer in some amount does not furnish conclusive evidence for keeping a particular subject in the curriculum. The criticism is undoubtedly valid in the present instance, since there are ways of manipulating English alone to achieve the same ends more efficiently. If there are other reasons for the student to learn the language, however, he might as well obtain maximum benefit from his endeavor.

The claim that study of a modern foreign language increases international understanding is heard increasingly today. It has been conclusively demonstrated that attitudes toward a specific country can be changed in a favorable direction by *proper* study of the language. One suspects also that it would not be difficult to find language courses taught somewhat differently that produce the opposite effect, but data are not available. When the time spent by the

average student in learning the language is balanced against the gain in attitude toward a single country, one is tempted to seek again for a more direct approach to international good will. Language training is best justified when the student needs to know the language, whether his need is for business or aesthetic reasons.

Aesthetic Appreciations

There are specific problems in the teaching of aesthetic appreciations in music, art, and literature, but only common problems will be considered here. It should also be noted that transfer of appreciations from one area to another will not take place automatically, i.e., aesthetic appreciation cannot be trained as a whole by working in any one medium. If the instructor in music wishes to have the students relate his subject to art or literature, classroom activities must include such relationships.

In training for appreciations, we frequently run afoul of the grading system. Grades based on proficiency are essential in professional courses, but we should consider the possibility that the problems may not be the same in general education. If we are interested in increasing reading and enjoyment in reading, why should we construct tests and grade our students solely in terms of their intellectual grasp of the subject? Is the ability to memorize the names of Shakespeare's characters related to the main objective of instruction? Grades are not easy to assign in the learning of appreciations, but undesirable practices should not be continued, even though there is no easy substitute.

General education in all fields is frequently in conflict with the interests of special education. We sometimes confuse what an advanced graduate student should know about Shakespeare, for example, with the needs of lower-division students, most of whom will major in other fields. This confusion frequently leads also to stress on information and analysis at the expense of appreciations.

Aesthetic appreciation is not solely an emotional experience. Intellectual competence is necessary; e.g., ability to read the English language with understanding is basic to literary appreciation. Historical information may also be important. Principles of psychology,

including symptoms of abnormal behavior and of unconscious motivation, may at times be involved. These can be organized to increase the appreciation of the novel, or they can be taught as ends in themselves. The sort of organization intended here can frequently be obtained in good films or plays better than by the usual classroom procedures. Visual aids must be carefully selected and used, however, if they are to make the desired contribution.

The Great-Books Approach

The contribution of the so-called "great-books" approach to general education is sometimes assessed in terms of the need to acquaint students with the wisdom of the past. The problem becomes of more interest from the transfer point of view if something is added about the need to use the past wisdom in the present. Isolated information about the past is easy to teach but is difficult for the student to retain and use. Use of the wisdom of the past in considering present problems does not take place automatically, even with the brightest of students. The student must have the opportunity in the classroom to try out ideas obtained from his study if his knowledge is going to transfer to new situations. In attempting to make history meaningful to secondary students, for example, teachers have successfully taught history "backward." This does not mean that we must always start with the present, but, if we want effects in the present, we must teach for that objective.

Social scientists frequently find themselves at odds with the enthusiasts for the great-books program on an issue that is less clearly related to the transfer problem. These enthusiasts sometimes imply that study of the great books is a sufficient basis for deciding present social problems and problems of human interrelationships. The social scientist does not believe that such problems can be solved by anyone, even with optimum teaching, from the study of our classics alone. He argues that the essential content simply is not there. In addition to the wisdom of the ages, we need to obtain reliable information about human problems by the application of scientific methods to those problems. Since the content is considered inadequate, the advocate of an extreme position with regard to the value of the

great-books approach to general education is only, so it is reasoned, rationalizing his position on grounds of formal discipline.

Science

During the last fifty years many institutions have required students to have one laboratory course in science in the lower division. Typical reasons offered are to train students in the disciplined habits of scientists and to give students an understanding and appreciation of the scientific method. Since any laboratory course can fill the requirement in most institutions, it is obvious that claims for considerable transfer are involved.

There are several reasonable predictions that can be made concerning this procedure. In the first place, the training in the physics laboratory will probably extend only to the subject matter of physics. If greater breadth than that is required, the course must be broadened. Second, the techniques taught in the usual laboratory are only in small part the techniques of the scientist. The techniques learned have been characterized in an earlier section as those of the technician, not of the scientist. The major omission from the laboratory of techniques essential to the scientist are his problem-solving activities. If problem-solving is desired, problem-solving must be an essential part of the laboratory procedure.

Also omitted from the usual laboratory course is any attention to attitudes toward science. There is little profit in required courses in science that may increase the student's dislike of science and scientists. Desirable changes in attitudes in this area can no more be taken for granted than they can in the area of aesthetic appreciations. Changes in attitudes can be measured with some success. Techniques for changing attitudes in specific courses must be developed.

The writer has attempted to interpret the transfer-of-training literature in psychology as it pertains to the problems of general education. In doing this, the history of the thinking and experimentation with regard to transfer problems has been traced up to the present, and an evaluation of present status has been given. A highly personal interpretation of the implications of the transfer theory to a number of educational problems has also been attempted. The first step in analyzing an educational problem in

terms of transfer possibilities is to decide on the ends to be accomplished. The second step is to select the classroom (or course) content that seems most suitable for the achievement of the objectives. This selection is made primarily in terms of the identical-components basis for transfer, that is, the content of the training situation should correspond as closely as possible to the content of the prospective transfer situation. The third step is to decide how this content should be presented or to determine the techniques of instruction that will be most effective. Here the contributions of Judd and the Gestalt psychologists are most appropriate: the teaching must stress general principles, organization of the learning, etc. The fourth step, and perhaps more important than either the second or the third, is to attempt to measure the extent to which the predicted transfer takes place.³

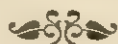
³ Any reader can disagree with conclusions reached by the writer and still be respectable in psychological circles. The reader who disagrees is under compulsion, however, to do something about his disagreement. One does not need to be a psychologist in order to participate in the measurement of educational outcomes.

ERNEST R. HILGARD, ROBERT P. IRVINE,
AND JAMES E. WHIPPLE

Rote Memorization, Understanding, and Transfer: an Extension of Katona's Card-trick Experiments¹

No matter what his educational philosophy may be, the teacher finds it appropriate to plan for drill and memorization experiences. The question is not whether drill and memorization are important. The basic concern should be for the *kind* of drill and memorization.

Dean Ernest R. Hilgard and his associates suggest answers to several questions that are relevant to this more general problem. Does learning by understanding have an advantage, in the long run, over learning by rote? Does the pupil who learns by understanding retain more than one who learns by rote? Does learning by understanding have greater transfer value than rote learning? The student should evaluate the appropriateness of the conclusions for educational tasks other than those involved in the study.



In his experimenting and theorizing, Katona (2, 3) distinguishes between "senseless" and "meaningful" learning, largely by contrast-

¹ This experiment is one in a series of studies of problem-solving being done under Project NR 150-104 and supported by Contract Nonr 225 (02) between Stanford University and the Office of Naval Research. Work on the contract is now under the general direction of Dr. Donald W. Taylor. Permission is granted for reproduction, translation, publication, use, and disposal of this article in whole or in part by or for the United States Government.

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ing the results of rote memorization with those of learning by understanding. Because some such distinction is implied in much contemporary learning theory, particularly in arguments centering around stimulus-response interpretations, on the one hand, and cognitive interpretations, on the other, it seemed pertinent to repeat some of Katona's experiments under conditions which might meet the criticisms of them (e.g., Melton, 4), and at the same time might add additional dimensions to the investigation of problem-solving behavior.

We wished to test experimentally three generalizations from Katona's work: (a) The advantage of learning with understanding does not necessarily show up in original learning, for learning with understanding may take longer than learning by rote. (b) Retention after learning by understanding tends to be greater than retention after learning by rote. (c) Transfer to new related tasks is greater after learning by understanding than after learning by rote.

We chose to begin with card tricks designed after those used by Katona, preserving the essential characteristics of his experiments but modifying them in procedural detail in order to simplify statistical treatment.

METHOD

The Ss for the experiment were 60 high school students from Palo Alto and Redwood City, California, who came to the laboratory individually on two successive days. The experiment was conducted during the summer vacation period in 1952, and Ss received pay for their services. The Ss were assigned alternately to each of two groups, so that a random distribution between groups might be achieved. One group, known as the Memorization Group, learned by rote memorization on the first day; the other, the Understanding Group, was taught a rational method on the first day. The two groups were treated alike on the second day, in tests for both retention and transfer. Differences between the groups on the second day were interpreted as due to differences in what they learned on the first day.

The card tricks have been described in detail by Katona (2, pp. 263-264). In order to do any one of the tricks S has to arrange a fixed number of playing cards in a correct order so that, when he plays them from the hand in a prescribed manner, they will appear on the

table in the plan of the trick. For example, he may have to arrange the cards so that when he plays the top card face up on the table, then plays the second card to the bottom of the pack held in his hand, plays the third card face up, the next to the bottom of the pack, and so on alternately until all are played, the cards played face up will be in the order ace, "2," "3," and so on for the number of cards in the hand. In another variation the trick demands that the cards turn up alternately red and black. Other variations call for odd- and even-numbered cards in a prescribed order, or, instead of skipping one card, two cards may be played to the bottom of the pack between the cards played face up on the table. The number of cards in the pack may be changed, thus changing the initial order, even though the same general outcome is called for. All the tricks are alike in that each calls for a fixed order of cards in the pack, and none requires special manipulative skill. The tricks are difficult only because the cards played to the bottom of the pack are reused in later runs through the pack, and so the original arrangement in the pack is not immediately obvious.

In order to show *S* the general requirements of the tricks, *E* began by demonstrating a trick with 13 spades pre-arranged in preparation for the demonstration. He had prepared the pack in the order A-Q-2-8-3-J-4-9-5-K-6-10-7. He held the cards face down, with the back of the ace face up on the table, then, without showing what card it was, he placed the second card at the bottom of the pack held in his hand. Then he played the next card, a "2," face up. He placed the next card on the bottom, following the practice of skipping one card each time between those played face up on the table. Continuing in this way, alternately playing a card and skipping one, he came out with all of the cards in the proper order on the table. This trick is named "13 spades; skip one."

The first trick that *E* proposed to teach *S* was one using four red cards and four black cards. He showed *S* how to arrange the cards so that as he played them alternately face up on the table and to the bottom of the pack they would appear alternately red and black on the table, i.e., turning up in the order R-B-R-B-R-B-R-B. This trick is called "4 red, 4 black; skip one." The solution is to arrange the cards in the order: R-R-B-R-R-B-B-B.

The *E* introduced a difference in treatment between the Memorization Group and the Understanding Group through the manner in which he taught this first trick. To an *S* assigned to the Memorization Group he simply gave the order of red and black cards for the solution. The *S* learned the order by rote, and then arranged the cards

and performed the trick. Occasionally he made errors, such as reversing the order by placing the top card on the bottom. The *E* pointed out and corrected any errors. The *E* recorded the time required to teach the trick, from the beginning of instructions to a perfect performance of the trick.

Instead of giving the correct order, *E* showed *Ss* in the Understanding Group how to derive the order, following a written scheme suggested by Katona (2, page 264):

Scheme for Determining Correct Order of Cards

| | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|
| 1. | ? | ? | ? | ? | ? | ? | ? | ? |
| 2. | R | ? | B | ? | R | ? | B | ? |
| 3. | | R | | ? | | B | | ? |
| 4. | | | | R | | | | ? |
| 5. | | | | | | | | B |
| <hr/> | | | | | | | | |
| 6. | R | R | B | R | R | B | B | B |

In this scheme, the question marks represent unknown cards. Originally, all eight cards are unknown, as in Row 1. The first time through, we know that the alternate cards must be red (R) and black (B), as in Row 2. The four cards remaining in the hand are still unknown, shown by the question marks of Row 2. We know that the first of these remaining cards must be red, the third black. This information is recorded in Row 3. There are still two unknown cards remaining. In Row 4 we assign red to the first of these, leaving black for the remaining card, Row 5. In Row 6 we summarize all that we did above, and have the solution.

After *E* had shown *S* how to do this, he asked him to repeat the solution with pencil and paper, and then to arrange the cards in the pack and do the trick. The *E* answered any questions that came up, and pointed out and helped *S* to correct errors. The *E* recorded the total time required to teach the successful trick to *S*.

The order of tasks was alike for both groups of *Ss* on the two days of the experiment, as follows:

Day 1

Foredemonstration by *E*: 13 spades; skip one.

Task 1: 4 red, 4 black; skip one. (*Solution*: R-R-B-R-R-B-B-B.)

Task 2: 8 spades; skip one. (*Solution*: A-5-2-7-3-6-4-8.)

Day 2

Foredemonstration by *E*: 13 spades; skip one.

Retest of Task 1: 4 red, 4 black; skip one.

Retest of Task 2: 8 spades; skip one.

Task 3 (transfer by transposition): 4 even, 4 odd; skip one. (*Solution: E-E-O-E-E-O-O-O.*)

Task 4 (transfer involving problem-solving): 3 red, 3 black; skip one. (*Solution: R-B-B-B-R-R.*)

Task 5: 4 red, 4 black; skip two. (*Solution: R-R-B-B-B-B-R-R.*)

Task 6: 10 spades; skip two (*Solution: A-10-8-2-5-7-3-9-6-4.*)

The rationale of the order of tasks is fairly evident. It seemed to us desirable to use at least two forms of the problem in the memorization series in order to set the stage for the transfer experiments to follow. The foredemonstration was repeated on Day 2 so that there would be no ambiguity about what was called for in the tricks Ss were asked to recall. On Day 1 both tasks were learned to the point of a perfect performance of the tasks. Task 1 was retested immediately following the foredemonstration on Day 2. Because our primary interest centered on transfer, any S who made errors in the retest on Task 1 was retrained to a perfect performance before going to Task 2. This means that the retest on Task 2 may have been aided by help given on Task 1. If there were errors on Task 2, it was also retaught, so that the transfer tests to follow would be based on prior learning that had been recently correct in its outcome.

In the transfer tasks *E* simply gave S the appropriate cards and told him to arrange them, if he could, in such a way as to satisfy the requirements of the assigned trick. A time limit of 2 min. was imposed on both the retention and the transfer tasks. The limit was imposed so that Ss of the Memorization Group would not have time to discover and learn for themselves rational methods similar to those taught Ss of the Understanding Group. Few Ss of the Understanding Group were handicapped by the time limit; most of them who did not finish in the 2 min. allowed were not using correctly the method taught. If an S did not complete the transfer task in the allotted time, or finished it incorrectly, he went right on to the next task. In order to avoid excessive frustration, Ss of the Memorization Group were taught a rational solution to the problems after completing the experiment on the second day. Data were not recorded from these postexperimental trials.

It will be noted that the transfer tasks are of two kinds, planned to have several degrees of difficulty. Task 3 illustrates transfer by simple transposition, with even- and odd-numbered cards substituted for the previously learned red and black cards. It was conjectured that the Memorization Group had a fair chance to make this transfer on the basis of the order they had memorized. Tasks 4, 5, and 6 do not permit a simple transposition, and for them the Understanding

Group has a logical advantage. The method taught the Understanding Group is applicable, provided it is really understood.

Task 4 resembles Task 1, but the change in number of cards changes the order. It is easy enough, however, that a little trial-and-error behavior can produce the necessary rearrangement. Tasks 5 and 6, by introducing the skipping of two cards instead of one, are by all odds the most difficult. Logically, however, the solution taught the Understanding Group was readily applicable to each of these tasks.

RESULTS

Ease of Memorization vs. Ease of Learning by Understanding

Because the orders of cards to be memorized were very easy, the original tasks were learned much more quickly by the Memorization Group than by the Understanding Group. The Understanding Group had to learn a pencil-and-paper method of diagramming the order of the cards on the basis of the requirements of the problem. Because the Understanding Group took longer on both tasks than the Memorization Group, it is probably unwise to say that the amount of practice was equated, even though both mastered the tasks satisfactorily before completing the first day's training. The times required for mastering both tasks by the two groups are given in Table 1.

TABLE 1

TIME (IN SECONDS) REQUIRED TO MASTER TASK 1 AND TASK 2 ON DAY 1

| GROUP | N | TASK 1 * | | TASK 2 ** | |
|---------------|----|----------|-----|-----------|-----|
| | | Mean | SD | Mean | SD |
| Memorization | 30 | 130 | 52 | 123 | 52 |
| Understanding | 30 | 435 | 263 | 202 | 115 |

* 4 red, 4 black; skip one.

** 8 spades; skip one.

It is evident from Table 1 that the Understanding Group was slow in learning what was required for the solution of Task 1, but that some economy had already entered by the time Task 2 was attempted. Even so, the Understanding Group was behind the Memorization Group on both tasks. This result agrees with Katona's

findings; it serves as a warning that if there are advantages to learning by understanding they do not rest in any universal advantage in ease of acquisition.

Overnight Retention

The Ss were warned at the end of Day 1 not to think about or practice what they had learned, and they were questioned about it at the beginning of Day 2. The Ss appeared to be acting in good faith, and no evidence of rehearsal was found. The results for the overnight retention tests on Tasks 1 and 2 are given in Table 2.

TABLE 2
NUMBER OF Ss MAKING PERFECT OVERNIGHT RETENTION SCORES
ON TASKS 1 AND 2

| GROUP | N | TASK 1 | TASK 2 |
|--|----|--------|--------|
| Memorization | 30 | 22 | 21 |
| Understanding | 30 | 23 | 27 |
| Probability of this difference arising by chance * | | 1.00 | .05 |

* Determined by computing the exact probabilities from the fourfold table based on success and failure. Corresponds approximately to a one-tailed test of χ^2 . See Fisher (1, pp. 100-102).

We see that the one-day retention gives no advantage to the Understanding Group for the retention of Task 1, which is uncontaminated by new learning. The advantage of the Understanding Group on Task 2, which is barely significant statistically, may have arisen in part from the retraining on Task 1 of those who failed to solve that task immediately. These results contradict Katona's generalization that learning with understanding is better retained than learning by rote. The interval between learning and retention is so short, however, that the test is perhaps not entirely satisfactory. There were an appreciable number of Ss in both groups who made errors, so that the result does not depend upon overlearning. As many of these errors were made in the Understanding Group as in the Memorization Group. If one group should have had an initial advantage over the other, it was the Understanding Group because of the extra time used in learning on Day 1.

Transfer by Simple Transposition

Task 3 required simply that for the familiar order of red and black cards there be substituted a similar order of odd and even cards. This substitution was as possible for the memorization Ss as for those trained with understanding, although they had to discover the possibility for themselves. Even so, the Understanding Group appeared to have a slight advantage. Seventeen of 30 Ss in the Memorization Group failed to make a perfect score on Task 3; however, 10 of 30 Ss in the Understanding Group also failed, so that the statistical significance of the difference is marginal ($p = .06$, see footnote to Table 2).

Transfer Involving Problem-Solving

The next three transfer tasks all involved problem-solving; that is, they could not be performed through simple transposition of the formula known to the Memorization Group, although they could be worked out by an adaptation of the method known to the Understanding Group. As shown in Table 3, the Understanding Group had an advantage throughout, thus fully substantiating Kato's findings on transfer.

The success of the Understanding Group was relative only. Perhaps the most striking feature of the table is the relatively poor success of the Understanding Group, even though it did better than

TABLE 3
NUMBER OF Ss MAKING PERFECT SCORES ON PROBLEM-SOLVING
TASKS 4, 5, AND 6

| GROUP | N | TASK 4 | TASK 5 | TASK 6 |
|---|----|-----------------------------------|-----------------------------------|------------------------------|
| | | 3 Red, 3 Black; Skip One | 4 Red, 4 Black; Skip Two | 10 Spades; Skip Two |
| Memorization | 30 | 3 | 1 | 1 |
| Understanding | 30 | 16 | 7 | 10 |
| Probability of this difference arising by chance * | | .0003 | .03 | .003 |

* See note to Table 2.

the Memorization Group. Only on Task 4 were as many as half the Understanding Group successful.

The evident increase in difficulty for the Understanding Group between Task 4 and the next two tasks came with the requirement of skipping two, after having been taught to skip one. The contrast is, therefore, not simply that between memorization and understanding. There are apparently degrees of understanding that must be taken into consideration.

DISCUSSION

The experiments were designed primarily to study the ease of transfer after learning by memorization and by understanding. Katona's finding of significantly greater transfer after learning by understanding is borne out. The fact that original learning took longer for the Understanding Group than for the Memorization Group is in part a function of the mechanics of instruction necessary to teach the understanding method. The failure of the Understanding Group to show advantage in overnight retention remains to be accounted for, along with the failures of many members of the Understanding Group to solve the transfer problems. The failures of the Understanding Group are more impressive than their successes, in view of the logical advantages inherent in the methods they were taught.

Errors by Ss of the Understanding Group fall into several classes:

1. Some Ss, impatient with the understanding method, adopted the rote memorization method once the answer was achieved. On the retest they attempted to remember the solution from the day before, rather than to go about reconstructing it. Hence they made the same kinds of errors Ss of the Memorization Group made.

2. Careless errors were very common among these high school students. Even though they understood the method of diagramming the order of the cards, they frequently skipped spaces improperly, especially when moving from one row of their diagram to the next. Such errors often persisted in later trials, even after attention had been drawn to them and they had been corrected on earlier trials.

3. Confusion was occasionally due to partial understanding, partial reliance on rote learning. A device that gives understanding to one who fully sees the relationships involved may be used as a formula or a crutch by one who has not fully grasped the essential relationships. It was possible to teach the "understanding method" so that it could be used successfully with the first two tasks without its being understood in the fuller sense.

The confusion and errors on the part of the Understanding Group set a number of problems for further investigation. Several different methods of making a rational approach to these card tricks have been devised, such as working backwards, or using numbered slips of paper in determining the order of cards. Further experiments are under way in order to determine the conditions under which more adequate understanding is achieved.

SUMMARY

Some of Katona's card-trick experiments were repeated with 60 high school students assigned to two groups (a Memorization Group and an Understanding Group). The experimentation was done individually.

The following results were obtained:

1. More time was required to teach the problems initially to the Understanding Group than to the Memorization Group.

2. Overnight retention was equal for both groups, although many retention errors were made even over this relatively short interval. After the first retention task was relearned, the retention test for the second task favored the Understanding Group.

3. Transfer to a task requiring simple transposition, therefore logically soluble on the basis of prior experience by both groups, led to considerable transfer by both groups, but the Understanding Group achieved greater success than the Memorization Group, a result of marginal statistical significance.

4. Transfer to three tasks requiring problem-solving all favored the Understanding Group by significant amounts.

5. Large numbers of errors were made by members of the Understanding Group. These are attributed to (a) reliance on rote memory when logical solution was possible, (b) careless errors within an

understood approach, and (c) confusion due to partial understanding, insufficient to mediate more difficult transfer.

Failure to find an advantage in retention for the Understanding Group over the Memorization Group contradicts one of Katona's generalizations. The findings on transfer confirm Katona's generalizations about the superiority of understanding over rote memorization.

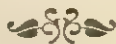
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HERBERT G. BIRCH AND
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The Negative Effect of Previous Experience on Productive Thinking

The teacher often finds that the learner is not utilizing previously acquired information or skills in a present problem to which such knowledge or skills are presumably relevant. That is, the pupil "knows" what he needs to know in order to solve the problem but he fails to use this knowledge. The difficulty is sometimes found in the fact that the problem situation is not clear to the pupil. On the other hand, it may be that the previous learning took place inadequately. The phenomenon of "functional fixedness" bears upon the latter possibility and provides insight into one of the reasons why learning may not transfer. The authors do not present the educational implications of their findings in this article, but the student should consider how the possibility of negative learning effects in the curriculum can be anticipated and minimized.



The part which is played by past experience in human problem-solving behavior has long been a subject for experiment and discussion. Investigations viewing the evidence from different theoretical vantage points have arrived at diverse conclusions, which in some instances identify problem solving with trial-and-error learning (3), in other cases (1, 8) consider past experience in general as

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providing the raw materials out of which a problem-solving response may be fabricated, and on occasion some investigators have even neglected to consider the question of past experience as essential for a problem-solving theory (9). One of the reasons for the diversity of roles which have been accorded to past experience is that problem solving is by no means a unitary process. Although in all problem solving a solution is arrived at, the processes of behavior whereby the solution is achieved are of several different kinds. Maier (8) has served to clarify this issue by sharpening the often belabored distinction between *reproductive* and *productive thinking*. His discussion was developed in terms of the part which past experience may play in each type of performance. Reproductive thinking, Maier believes, is characterized by the solution of problems by means of the existence of stimulus equivalences in the novel (or problem) situation and in the previously mastered situation. Thus, for him, reproductive thinking and transfer of training are to be considered closely similar if not identical phenomena. *Productive thinking*, however, is not merely the process of arriving at a solution through the direct application of previous learning. In productive thinking past experience is repatterned and restructured to meet current demands, and is thus the counterpart of reasoning as Maier has defined that term (6). In the present study we are concerned with the relation of past experience to the productive thinking process, and not with reproductive thinking.

Probably the studies which have contributed most directly to an understanding of the manner in which the background of past experiences influences the nature of human productive thinking are those of Maier (6, 7) and Duncker (2). Maier, in his examination of the relation between stimulus equivalence and reasoning (8), identified several ways in which past experience may affect problem-solving activities. Problem solving may be facilitated by equivalences which exist in the immediate problem situation and in past experience. Further, as he has shown elsewhere (6), and as Birch (1) has shown for the chimpanzee, the background of past learning represents an essential repertoire of behavior which must be available for restructuring when new situational demands develop. On the other hand, productive thinking is impossible if the individual is chained to the past. The past experience may become a hindrance and an obstacle which blocks productive thinking and reduces behavior to stereotyped and fruitless essays.

It is primarily with this negative effect which may be exercised by past experience that Duncker has dealt in his problem-solving experiments (2). In a series of situations designed to study what he terms "functional-fixedness," Duncker tried to determine the manner in which the previous utilization of an object for a dissimilar function in the *same problem context* affected its availability in subsequent problem solving, and found that such specific experience made the objects previously utilized in this manner significantly less available as instruments when the problem presented for solution was changed. Two weaknesses in experimental design limit the generality of the inferences which may be drawn from Duncker's results. In the first place, by using the same objective situation for both his "pre-utilization" experience and for his new problem-solving task, he makes it impossible to determine whether the difficulty in using a previously utilized object for the solution of a new problem derives from the limitation of the functional properties of this object by the prior experience, from the establishment of false problem-solving directions, from the development of attitudes of completion ("over and done with") on the part of the S which effectively remove the already-used object from the field of activity, or from any of a variety of other effects. Secondly, in selecting the different tools which would be available to the Ss in their problem-solving activities, Duncker made no attempt to equate the instruments for different degrees of objective adequacy as tools in solving the problem. Obviously, if the objects in the "pre-utilization" group are objectively less adequate as tools than are the non-pre-utilized materials, the scales are weighted in favor of fewer solutions for the "pre-utilization" group. In not a few instances Duncker's problem situations may be criticized on these grounds, and the question arises as to whether his results derive as much from the pre-experimental object selection as from the effects of pre-utilization of the materials by the subjects.

To remove these impediments to interpretation of this aspect of the effects of previous experience on problem solving, it is necessary to study the problem under conditions in which the background of prior specific experience is obtained by the Ss in a situation remote from the crucial problem-solving task, and to contrast as problem-solving tools objects whose adequacy as instruments is objectively equal. The design of the present study stems from these considerations.

SUBJECTS AND PROCEDURE

Twenty-five students at the City College, New York, were used as Ss in this experiment. These Ss were divided into three groups, a control group and two experimental groups. The control group had 6 Ss, and the experimental groups contained 10 and 9 Ss, respectively.

As the crucial problem-solving task in this experiment, all Ss were required to solve the two-cord problem used extensively by Maier (7) in his studies of "direction" in problem solving. In this problem the S is required to tie together the free ends of two cords which are suspended from the ceiling to the floor of a corridor. The distance between the two cords is such that the S cannot reach one cord if the other is held. In our arrangement the problem could be solved only if the S would tie a weight to the end of one of the strings and thus convert it into a pendulum which could be set swinging and then be caught on its upswing while the stationary cord was held. The two cords could then be tied together and the problem solved. In our situation only two objects could be utilized as weights. The first of these objects was an electrical switch and the second, an electrical relay. The conditions of pretest training involved the acquisition of differential prior experience with these objects by our Ss. The pretest training was conducted as follows:

Group S contained 9 Ss who were given the pretest task of completing an electrical circuit on a "bread-board" by using a *switch*, which had to be installed if the circuit were to be completed and controllable.

Group R consisted of 10 Ss who received pretest training in the completion of an identical circuit by the use of a *relay*, which is essentially a switch.

Group C, the control group, consisted of 6 engineering students with a wide variety of electrical experience. These Ss were given no pretraining. The Ss in groups R and S had had little or no experience with electrical wiring.

Shortly after having completed the pretesting tasks, the Ss were presented with the two-cord problem and asked to solve it by using the objects lying before them on a table. Only two objects were present, a *switch* and a *relay*, each identical with the ones used in the pre-training period.

Since the two-cord problem is very difficult to solve without the presentation of "direction"-producing hints, such hints were presented by E 9 min. after the presentation of the problem. The hints con-

sisted in brushing against the string or strings and "accidentally" setting them swinging. Solutions were always achieved within 3 min. after the presentation of hints. All Ss were individually tested. Upon completing the two-cord problem, the Ss were asked why they had chosen either the switch or the relay as the pendulum weight.

RESULTS

The results reported will deal primarily with the nature of the choice of objects made by the Ss in the critical task situation. These data for all groups are shown in Table 1. The control group chose equally between the switch and the relay as pendulum weights which might be utilized for the solution of the two-cord problem. These data indicate that for individuals with prior experience which is not heavily weighted in favor of either the switch or the relay, no significant difference exists between the objects in terms of their utility as tools in solving the two-cord problem.

TABLE I
FREQUENCY OF CHOICE OF OBJECTS IN PROBLEM SOLUTION

| <i>Group</i> | <i>N</i> | <i>No. Using Relay</i> | <i>No. Using Switch</i> |
|--------------|----------|----------------------------|-----------------------------|
| Control (C) | 6 | 3 | 3 |
| Exper. (R) | 10 | 0 | 10 |
| Exper. (S) | 9 | 7 | 2 |

The behavior of the Ss who had received specific pre-utilization experience with either the switch or the relay differed in a striking manner from the behavior of the Ss who had not received such experience. Those who had initially been trained to complete an electrical circuit with a relay never utilized this object as the pendulum weight for the solution of the two-cord problem. In every instance the Ss chose the switch, an object not previously manipulated, as the object which was to be converted into a pendulum bob in the solution of the two-cord problem. On the other hand, the Ss who had initially been trained to use a switch for the completion of an electrical circuit preponderantly chose the relay as the pendulum weight in solving the two-cord problem.

If the results on solving the two-cord problem for both the

switch and relay pre-utilization groups are combined, it is found that 17 of the 19 Ss used that object with which they had had no pre-experimental training as the problem-solving tool. There are less than five chances in one hundred that such results could have occurred as the result of chance fluctuations in responding on the part of the Ss. It may, therefore, be inferred that the nature of the previous specific experiences of the Ss were influential in determining their problem-solving choices.

The replies which the Ss made to the question, "Why did you use the switch (or relay) as the pendulum weight?" further indicate that the pre-utilization experiences exercised a decisive effect upon their problem-solving efforts. Those Ss who used the switch as the pendulum weight in the two-cord problem offered varying reasons for its superiority over the relay as a pendulum bob. They claimed that it was easier to attach, more compact, etc. The Ss who tended to use the relay as the pendulum bob in solving the two-cord problem proffered equally "good" reasons for their selection. The relay, they claimed, was easier to attach, heavier, etc. In both groups of Ss individuals became somewhat defensive when queried as to the reasons for their choices, and typically replied by prefacing their answers with the remark, "Anyone can see that this one is better as a pendulum weight." A number of Ss even went so far as to say, "any fool can see that this one is better." Since these remarks are directed with equal vehemence at either the switch or at the relay, it is clear that the Ss were not advancing objective reasons for their choices, but were, rather, revealing the effects which their prior specific experience was having on their perceptions.

DISCUSSION

Although the present study was designed primarily to explore a neglected aspect of problem-solving behavior, it has some significance for problem-solving theory and provides clarifications for several important questions. In the first place, the results reveal that the question of the role played by past experience in productive thinking cannot receive a uniform answer until the nature of the past experience is clearly understood. Even though this study indicates that prior experience of a specific kind with a potential prob-

lem-solving tool effectively prevents this instrument from being used in problem solution, there is little doubt on the basis of other studies (1, 4) that a different kind of experience may enhance the value of an object as a tool in problem solving. Therefore, what appears to be important for problem solving is not that an individual's performance is dependent upon past experience per se, but rather that *different kinds* of experience are differentially effective in influencing the content of problem-solving behavior. Our results therefore are in accord with those of Katona (5), who found that *how* and *what* an individual learned and not simply *whether* he learned determined the amount of positive transfer effect that occurred in subsequent learning.

Perhaps the most interesting phase of our results concerns the manner in which the individual's previous experience influenced his perceptions. The pre-utilization experience apparently changed the perceived properties of the object previously used in a different context to such a degree that its problem-solving characteristic could not be readily seen. This change in perception was probably based on the manner in which the previous experience had emphasized the instrument as an *electrical object* and so made for extreme difficulty in perceiving it in terms of its general characteristic of *mass*, which is essential for pendulum construction. The kind of previous experience presented therefore functioned to limit the number of the properties of the object that could be perceived by the S.

These results suggest that there are two phenomenally describable kinds of learning that may be important in problem solving. The first variety of learning involves the acquisition by S of certain broad, nonspecific, general notions about the properties of the object or method experienced. This was undoubtedly the case in Birch's study of chimpanzee problem solving (1), where young chimpanzees who were initially incapable of using a stick to take distant food into reach manifested this ability after a very short period of play with sticks. It is this general, broad, nonspecific experience which seems to provide the repertoire of experience essential for productive thinking.

A second type of learning involves the acquisition of experiences which convert the initial perception of broad general properties of an object into perceptions of specific limited functional

characteristics. It is this second variety of learning which appears to have occurred in the pre-utilization experiences of the Ss in our study and to have produced what Duncker (2) refers to as "functional fixedness" in problem-solving perceptions. Such fixedness limits the range of perceptual organizations capable of being developed by the S and so interferes with problem solving.

SUMMARY

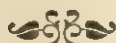
The present study was designed to investigate the effects of specific experience with objects in unrelated situations upon their utilizability as problem-solving instruments. The results revealed that specific prior experience limited the perception of object properties and made the experienced materials less available as problem-solving tools. These results are discussed in connection with Duncker's hypothesis of "functional fixedness," and as contributions to the general areas of transfer and of productive thinking.

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Chapter Seven

PUPIL ADJUSTMENT AND GUIDANCE

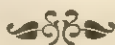


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LAWRENCE K. FRANK

The Reorientation of Education to the Promotion of Mental Hygiene

Educators at the elementary- and secondary-school levels generally accept the view that the mental health of pupils is their proper concern and partial responsibility. They have, however, been slow in shaking off some unfortunate conceptions of mental hygiene and in modifying their practices so as to promote adequate mental health. Dr. Lawrence K. Frank, drawing on his extensive background in the behavioral sciences and education, suggests some needed clarifications and points to what were in 1939 some educational shortcomings and possible sources of difficulty.



The conception of mental hygiene has been gradually clarified and enlarged, first, by the differentiation of mental hygiene from psychiatric diagnosis and therapy, and second, by the realization that mental hygiene aims at something more than the prevention of mental disorders. This recognition of mental hygiene as an effort to foster saner, happier, and more coöperative personalities has focused attention upon education and its reorientation.

We may approach education as a cultural process and look for clues to the promotion of mental health in an examination of what cultural education involves for the individual. Here we face an initial difficulty because we are, for the most part, unaware of what culture does to, and for, the individual. Perhaps we can gain

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some perspective on this question by approaching the situation as follows:

While as organisms we *exist* in the common, *public* world of other organisms, objects, and events, and are subject to the natural processes of gravitation, heat and cold, and other physical, chemical, and biological operations, it is evident, upon further reflection, that we *live* in a *cultural* world which gives to the common, public world the peculiar meanings, significances, and values, the highly formalized patterns of repression and expression, and the multitudinous tools, technics, and rituals with which our society attempts to meet the exigencies of life. This cultural world, which is more real and compelling than the public, physical world in which we exist, is transmitted from one generation to the next by a process of education which begins at birth and continues on into adult life. In other words, each child must be initiated into our culture world and made a participant in our society by a process of education which makes him see the world in terms of the meanings and significances and values, and the prohibitions and compulsions, that are cherished by our culture.

What we are now beginning to realize with increasing clarity is that the personality of the individual develops out of this process of acculturation—this educational procedure that attempts to mold him into the kind of person favored by his culture, and to give him the training and socialization necessary for living in that culture.

Here we can only briefly outline the major features of this educational procedure, noting especially that the cultural training begins at birth, in the requirement that the infant shall adapt himself to the prescribed schedule of infant feeding and frequently early weaning, shall accept toilet training, and shall learn to manage his emotional reactions. In so far as these practices drastically interfere with his physiological processes and involve severe deprivations of what the young organism needs for adequate infantile functioning, the child is forced to surrender his physiological autonomy and accept cultural control over his bodily processes, subordinating his organic needs to the prescribed patterns favored by his parents.¹

¹ See "The Fundamental Needs of the Child," by Lawrence K. Frank. *Mental Hygiene*, Vol. 22, pp. 353-79, July, 1938.

It is now becoming clear that these familiar, homely events, which we have all experienced as children and as parents, are fraught with lifelong significance for the child, because they involve deprivations and interferences which create acute tensions and organic distortions, and, above all, strong feelings of resentment, of anxiety, and of guilt toward the world, which may and usually do persist throughout his life.

In addition to these prescribed physiological adjustments, the young child is also required to learn other cultural patterns that carry further threats to his mental health. He must learn to respect the inviolabilities that culture imposes upon things and persons—what we call private property and the sanctity of the person. These lessons are exceedingly difficult because the child must learn to build up within himself the inhibitions that will prevent him from taking, approaching, or attacking freely accessible things and persons, despite strong impulses to do so. The child is also required to learn the many patterns of conduct that are prescribed for social life, such as language, manners and etiquette, masculine and feminine roles, and the extraordinary variety of rituals and symbolic practices (money, buying and selling, voting, and so on) that custom and tradition have ordained.

Mental hygiene is helping us to see that this early cultural training is necessary and inevitable, since the young child must be socialized, not only for the protection of society, but for his own guidance and self-management. But mental hygiene also makes clear that the mental health of the individual may be seriously jeopardized by the way in which these interferences and deprivations, these compulsions and prohibitions, are taught to him, and by the way authority in general is administered. That is to say, the personality of the child and his adjustment to society depend upon the way he *feels* about people and situations and especially about himself. If the educational process of weaning and learning to accept foodstuffs, of toilet training, of managing his emotional reactions, is administered harshly and cruelly or severely—*i.e.*, too early in life or too rapidly and without affectionate reassurance to allay the tension—then the child will *feel* deprived and regard the world as hostile. If the inviolabilities and the prescribed social practices are taught with stern discipline and punishment, without the love that alone can make these prohibitions and compulsions

emotionally acceptable, then the child will *feel* that other persons are his enemies and will develop a resistance to authority. Moreover, if all this education serves to humiliate him, as if he were a bad, wicked, sinful, and wholly unworthy person, the child can only conceive of himself in those terms and either act out the role of bad child or express his feelings of guilt or resentment in various disguises that are antisocial or self-defeating. It is, therefore, not only what culture demands and imposes upon the individual, but the way in which this early education is conducted, that makes or mars the mental health of the individual.

As we see the young child emerging from this family training, bearing the impact of these cultural lessons, we can begin to evaluate formal schooling in terms of its contribution to mental health or its accentuation of the already established personality difficulties in the young child. Here we see the child entering school at five or six, to face the demands for standardized academic achievement, for rigid conformity, and for adjustment to his contemporaries, bringing to these encounters all the perplexities and anxieties of his family background and training. It is evident that much of what is now done in the schools is inimical to mental health, since the child is confronted with more anxieties and exposed to frequent and devastating humiliations. Thus many of the attitudes and feelings he brings from his family training are crystallized and intensified by the school program and discipline.

If and when we are convinced that mental health must be conserved in education, we will call for teachers who are genuinely concerned with the personalities of children and not interested merely in their mental processes, who will continuously recognize the emotional needs and problems of the little boys and girls in their pupils of all ages.² Faced with these cultural demands, children need warm, affectionate, human relationships and personal recognition all through school, from nursery school through college; indeed, we never outgrow these fundamental personality needs even though we change our modes of expressing them and of seeking fulfillment as we grow older. To-day our greatest social need is not so much for intelligence and trained minds, as for sanity and the courage to live, for we now realize how intelligence in a dis-

² See *Emotion and the Educative Process*, by D. A. Prescott. Washington: American Council on Education, 1938.

torted, unhappy individual can be used, like science, for aggressive, destructive purposes, for defeatism and escapes. The highest academic competence does *not* guarantee a socially minded career or a humanly desirable design for living. In the interest of social welfare and human happiness, we could wisely sacrifice much of our present academic achievement for better personality integration and social adjustment, since only sane, coöperative personalities can deal with our present social disorder.

In education we see quite clearly that, just as parents inflict upon their children the distortions and anxieties from which they have suffered, so teachers feel it necessary to impose upon their pupils their anxieties and the intellectualisms they have used to meet their personality problems, as defenses against anxieties. Thus they find it difficult, if not impossible, to shift the school program from an impersonal training of the mind to a concern for the pupil's feelings and his efforts to adjust to life. Those schools and colleges that have made an attempt to help individual personalities to reach a saner, more mature level of functioning are regarded with suspicion and disdain by the others who cling to the purely intellectual program, in which alone they feel professionally secure. The irony of this situation is that the emotionally distorted, unhappy individual often makes the best scholar or scientist, because he finds a socially sanctioned way of living with his maladjustments in an academic career, wherein he sacrifices all else to his professional work as defense against mental ill health. Thus we are forced by the shining example of a few brilliant, but neurotic, professors to sacrifice all other students upon the altar of intellectual achievement.

We should begin, therefore, to scrutinize carefully the personality of all the cultural agents who, as teachers, physicians, psychiatrists, ministers and priests, youth workers, and in other capacities, are teaching and counseling children and youth. We will find that many of the ethical, moral, sex, and social ideals now being offered represent the projection of the individual's own lifelong anxieties and defenses, especially in regard to sex ethics.

Here it is necessary to point out, with all the emphasis possible, that these various cultural lessons—the physiological adjustments, the inviolabilities and patterned conduct and sex regulations—are necessary for any organized society. They must be taught to children

in order to free the child from his own physiological compulsions and impulses and from coercion by emotional reactions, which otherwise would dominate his life and prevent him from doing much else but exist on a purely organic level of functioning and fighting. They are also necessary to protect him from the aggressions, the invasions of his property and person, the disregard of his rights and privileges by others. Private property and sanctity of the person, it must be remembered, are learned ways of conduct toward objects and persons which permit individuals to enjoy possession and personal integrity without constant watching and fighting. Our whole legal system is predicated upon these learned patterns of conduct and upon the observance of such rituals as ownership and possession, contract, barter and sale, orderly litigation, and courtship and marriage. The individual needs this education in socialization more than society does because he must have guidance and sanctions to order his life. When a child receives inadequate socialization or ambiguous and vacillating teaching, so that he never is sure of what he can and cannot do, he may become a prey to constant anxiety and worry over the necessity of deciding every action, or be left to the mercy of every impulse.

The mental-hygiene orientation of education carries no support for the often preached doctrine of unrestrained freedom in the education of the child, because it is clear that neither the child nor the adult can tolerate such freedom; we need culture to pattern our behavior into socially acceptable conduct, to manage our impulses and emotions, to give values and purposes to our activities, and to rescue us from the intolerable isolation of our private worlds.

What mental hygiene asserts without reservation is the necessity of providing this socializing education with the minimum of damage to the personality, by guarding the child's feelings during the prolonged tuition he must undergo. The most effective protection of the child's personality is through warm, affectionate love, not love that exploits the child to assuage adult frustrations, nor love that dominates and crushes the child for adult satisfactions, nor love that cruelly and harshly disciplines the child "for his own good." The love and affection that the child needs is that which is non-possessive and non-demanding, but rather is a continual affirmation of his individual, personal worth and value and "belongingness"—which expresses itself in adequate breast-feeding; patient,

almost casual toilet training; firm, but kindly management of emotional reactions; and sympathetic, understanding tolerance of his fumbling efforts to master the lessons in socialization it has taken mankind thousands of years to learn.

Mental hygiene in education should stress again and again that these cultural lessons, despite their familiarity, present the most exacting demands that the mammalian organism has ever had to meet throughout the whole of its evolutionary development, because they involve the continuous control of the most primitive, elemental processes and impulses by the cerebral cortex, itself only recently evolved. Socialization, even under the most favorable parental guidance, involves tension, anxiety, resentment, and guilt which the individual may carry throughout his life. If, therefore, we want to educate sane, socially well-adjusted men and women, we must strive to make social life, with its necessary and desirable frustrations, repressions, and compulsions, *emotionally* acceptable to the child. Only when he can and does accept culture and learns to tolerate its restraints, while enjoying its protections and privileges, can he "face reality," to use the contemporary phrase for adjustment to social life and acceptance of one's own limitations and capacities.

It must be recognized that adult conduct toward members of the opposite sex is governed largely, if not wholly, by the early experiences and teachings of the family about sex, about masculine and feminine roles, about the significance of the love life and the place of sex functioning in adult living. Here, again, it is clear that it is not only *what* is taught, but *how* it is taught, to the child that makes the important difference. Nor can it be too strongly emphasized that the child's own perplexities about sex are intensified by the secrecy, the shame, the ambiguity, and the often violent emotional upheavals of his parents and teachers whenever he seeks understanding or attempts to explore his or another's genital organization. Just because sex is so pervasive and so powerful and must be regulated and patterned for the sake both of society and of the individual, the education of the child in this all-important area of life demands the utmost of sanity, of sincerity, and of decency. But alas, sex education is usually distorted, insincere, and obscene. In consequence, the emotionally warped child, with distorted ideas of sex, grows up to be the unhappy, maladjusted husband or wife,

or one of those adults whose lives are preoccupied with sex conflicts outside of marriage. It is safe to say that rarely, if ever, do we find a sex offender, a prostitute, a homosexual, or other sex deviant who has had an honest and truly human sex education. The price we are paying for this prevalent mishandling of sex education of children is beyond calculation, and the tragic irony is that the pathetic eagerness of parents to protect their children from sex damage is so largely responsible for these tragedies.

It is indeed melancholy to reflect upon the immense amount of time, energy, and anxiety expended in homes and schools in the attempt to socialize children and then to see the large number of delinquents and criminals, of mentally sick, of sex offenders, of prostitutes, of celibates, of unhappy wives and husbands, of harassed, anxious, insecure business men, politicians, professional workers, and of those who are expressing their anxiety and repressed feelings through physiological disturbances.³ These are the babies of yesterday who were twisted and distorted, frustrated and anxious, made acutely unhappy and resentful by their early family training, who are spending the rest of their lives trying to "get even," by aggressions against others or by disguised outlets for their feelings of hostility, resentment, and guilt. These are the school children of yesterday who were taught formal academic lessons and coached to pass examinations, while inwardly they seethed with resentment or sulked and daydreamed, or reacted blindly against a world of adults who callously ignored their unhappiness and their loneliness, misunderstood the meaning of their failures and delinquencies, misinterpreted their scholastic ambitions and achievements. These are the adolescents of yesterday who pathetically groped for enlightenment and guidance in making adjustment to the other sex, who sought vainly for emancipation from parents who would not allow them to grow up and mature, who looked for some design for living in a confused, disorderly world and found no helpful answers to their perplexities and aspirations. These are the same little boys and little girls to-day, hiding behind an outer mask of adult size and social, business, and professional positions, pretending to be rational, mature adults, while underneath they are hoping, fearing, hating, and despairing, as year by year they grow older, finding

³ See *Emotions and Bodily Changes*, by H. Flanders Dunbar, M.D. Second Edition. New York: Columbia University Press, 1938.

no one who understands or cares for their lonely, unhappy personalities. These are also the parents of to-morrow's adults upon whom they will impose much of the same distortion and unhappiness of their own childhood, because, unless aided from the outside, they can but repeat the patterns and treatment of their own rearing and make their children suffer as they suffered.

Primarily the task of mental hygiene is to break the continuity of those cultural traditions and family patterns that now lead to unnecessary personality distortions. We have inherited a conception of human nature and conduct as fixed and unchangeable, born to be antisocial; so long as we hold to that belief we are unable to understand what the education of the child involves. Moreover, so long as we retain those older ideas about human nature we cannot free ourselves from the convictions that now compel us to punish the child, frighten and terrorize him, withhold our love and threaten him with the most awful consequences for his natural infantile and childish activities.

As we assimilate the idea of man as a product of mammalian evolution, with an incredibly long past during which he has developed new capacities and powers, notably intelligence, without having lost any of the most primitive functions and needs, we can begin to reshape our education, in the home and in the schools, toward mental health.

The home and family offer the greatest opportunity for such a program, since it is essential that we begin to change the present practices of child training—which, alas, carry the added sanction of prevailing medical teaching and approval. Parent education is designed to reassure parents that they can trust human nature, and so they need not coerce and punish, terrorize and humiliate their children to make them sociable and well-adjusted. But parent education is more than the teaching of formulas and techniques of child rearing, as some have supposed; its purpose is to communicate, so far as possible, understanding and insights, to provide reassurance to parents and to help to translate the newer ideas of human nature and conduct into the daily life of the family. If we can do that, and through family consultation and guidance help parents toward a happier personal and married life, parent education will justify all the time and money we can spend upon it, because it is directed to the time and place where the matrix of

personality is formed. The mental health of the child is in the hands of the adults who are responsible for his rearing.

It is evident that the high schools and colleges can and should provide the basis for this parental education, especially since adolescents are desperately in need of help in human relations, particularly in their relations to their own families.

Just because boys and girls must face so many exigent questions, they are emotionally ready, if not eager, for the understandings and insights that will make for mental health. The high schools and colleges have a unique opportunity and a social responsibility because the adolescent is usually seeking emancipation from his parents, feeling the need of becoming independent as the first step toward becoming a mature adult, able and ready to start his or her own family life. In this situation the teachers and administrators can, if wise and tactful, intervene with benefit to the parents as well as to the adolescent. They can provide helpful educational experiences, through novels, plays, poetry, moving pictures, and radio dramatizations, since these æsthetic experiences enable the adolescent to gain insights and some understanding of himself and his needs, by sharing the emotional experiences of others.

Closely allied to the question of the relations of the adolescent to his family comes the question of sex maturation, which depends so largely upon achieving emotional independence from the family. It is clear from present-day evidence of family discord and marital unhappiness, of sex offenders, prostitutes, involuntary celibacy, and the futile, pitiable sex experimentation of so many youths and adults, that our traditional sex ethics and teaching are sadly in need of revision. Sex reform has usually meant a plea for "sex freedom," which, as every experienced person must now know, is a neurotic dream. As members of Western-European culture, we cannot tolerate "sex freedom," but must have some ethical justification and personality fulfillment for our sex functioning. What we are in need of to-day is a sex ethics freed from the degraded, obscene ideas and beliefs of the barnyard, which now make the sex relations of man and woman so often hideously subhuman. Adolescents are rejecting the older defeatist beliefs about sex; they are seeking a human, decent conception of sex that can be reconciled with their ethical ideals and their growing realization of woman's dignity. The present-day attempts at sex education are too biological and

too much concerned with procreation; they are not sufficiently concerned with the cultural and emotional problems of youth who want to know how to make sex a part of human living and personality fulfillment. They are seeking a conception of sex that is not merely exploitative, that no longer treats woman as an impersonal sex object to be used by the exigent male, but sees in sex a way to achieve intimacy, a means of communication, "another language," through which one lonely person can communicate with another. To displace the older sex teachings, with their great authority and sanction, we must offer youth a saner, more human, and more fulfilling conception, which will be not only more rewarding than our traditional ethics, but also more demanding, especially upon the male. No one need fear that libertarianism, promiscuity, or any other sex looseness will come from giving youth more wholesome ideas of sex and a belief that sex relations demand the sincerity and integrity of personal intimacy and affection, for personality fulfillment.

The mental-health reorientation in education awaits an ethical guidance for youth toward a society in which human personality will be conserved. The high schools and colleges, in presenting social studies and social problems, only emphasize the individual's feelings of helplessness in the face of large institutional complexities. What youth wants is some direction to his or her own personal life that will contribute to social values as well as bring individual fulfillment.

We may counsel youth to "face reality," but if we mean that they should learn to accept the present social disorder and confusion, the frustration of human needs and aspirations, and the ghastly degradation or destruction of so many human values, then we are guilty of the worst defeatism and sabotage of human nature.

If we are persuaded that mental hygiene has the significance we have here assumed, and if we are to be guided by the implications of our growing knowledge of personality development, we must acknowledge that most of the contemporary careers we urge upon youth are in truth but defenses against anxiety and emotional defeat—competitive struggles for power, prestige, or property that reflect the childhood insecurities from which the individual is fleeing and that threaten him with new insecurities from the other

aggressive individuals he must challenge. Such designs for living are neither mentally hygienic nor socially desirable, but at present they are the only socially approved uses to which youth is asked to dedicate his life. The youth of to-day, no less than the youth of other days, wants to be given tasks that arouse his enthusiasm and promise fulfillment of his aspirations. If we are to be sincere, we can but point out the futility of the competitive struggle that leads to no personal fulfillment because it arises from inner personal distortion and insecurity which no amount of achievement, property, or prestige can assuage. In contrast, we can try to give youth an understanding of how his or her own personal life may be made significant and enriched, not merely by achievement or acquisition, but by the quality of human relations he or she can sustain.

If any one doubts the adolescent's urgent need for new goals and purposes, he need only look abroad, where the anxieties created by the present uncertainties and confusions of our disintegrating culture have evoked the authoritarian states, which do not scruple to exploit the desire of youth to be sacrificed to some authority and purpose greater than merely personal ends. In place of the programs of unrestrained aggression and sacrifice to power-seeking of the dictators, can we not offer a richer, happier life to be won by wiser, saner conduct and devotion of self to sane living for human values? These are exigent mental-hygiene needs of youth and adults to-day that cannot be ignored in our preoccupation with the immediate clinical problems of individual mental disorder. Only the mental-hygienist, with the authority of clinical evidence, can assert vigorously that the surest, most direct road to social betterment is through a saner, more integrated development of individual personalities who do not need to exploit others politically, economically, or sexually, nor to defeat our economic, political, and social purposes for defense against, or release from, their anxieties. Can we make that assertion meaningful and emotionally convincing to youth to-day, and help both boys and girls to find the supreme courage to be sane in a world of neurotics and psychotics who are bent on destroying themselves and society in their frantic efforts at defense or escape?

We should recognize, however, that even the sanest and most integrated personalities to-day are suffering from the cumulative

disintegration of the basic ideas and conceptions that have for so long served to organize the world and order human experience.⁴ Every culture provides a conception of the universe, of man's place therein, of his relations to the group life, and of human nature and conduct, with which individuals build up their own framework of ideas and beliefs, construct their private worlds, and establish their criteria of credibility. We have inherited from theology and philosophy the ideas and beliefs that have served Western-European culture to order events, organize the world, and regulate conduct. But modern science, beginning with astronomy and physics and then continuing in geology and biology, anthropology, and now psychology, have made those ancient beliefs untenable for increasing numbers, who can no longer believe in a geocentric universe wherein man was specially created a few thousand years ago. Man has found a new history in his mammalian ancestry, and through anthropology he is discovering how plastic human nature really is and what diverse cultures and social arrangements can arise to organize and regulate human conduct.⁵ Recent studies of personality development are undermining the older idea of man as a wholly rational, volitional super-animal being, since he is being revealed as a creature of impulse and feelings, who has only lately developed intelligence, which, however, cannot obliterate or deny his more primitive and compelling functions and feelings without disaster to the individual and to society.

These new revelations about the world and man are profoundly disturbing, because they have left so many of us uncertain about what to believe, fearful of the immensities outside and also inside ourselves. We also have lost the older cosmic sanctions for our ethics and the guidance they gave to our conduct. The newer scientific findings and conceptions have not yet been formulated into a meaningful synthesis that is emotionally satisfying and in-

⁴ See the paper, "Mental Security," by Lawrence K. Frank, in *The Implications of Social Economic Goals for Education*. (Washington: National Education Association of the United States, 1937).

⁵ See *Patterns of Culture*, by Ruth Benedict (Boston: Houghton Mifflin Company, 1934). See also *Sex and Temperament*, by Margaret Mead (New York: William Morrow & Company, 1935) and *Coöperation and Competition Among Primitive People*, edited by Margaret Mead (New York: McGraw-Hill Book Company, 1937).

spiring to the new way of life. The newly discovered mammalian history has made possible a new future for mankind, but until man has really understood and emotionally accepted that history and its implications, he cannot begin to live or even to dream of his new future. It will be the task of education to-morrow to interpret these new ideas and beliefs, not as intellectual facts and scientific laws, but as meaningful conceptions and aspirations for guiding our lives.⁶

Perhaps only a new generation of children who have escaped the older formulations and the prevalent distortions of to-day can assimilate these startling new ideas and beliefs coming from scientific research, can face the new world now being created and accept the new human nature, and thus begin, not only to build the society that is to come, but to reconstruct our culture.

It must be clear, therefore, that mental hygiene is not merely an added embellishment or auxiliary service to be added to education. It is a far-reaching and all-embracing conception for the reorganization of our culture in terms of human needs and values and the creation of a social life dedicated to human conservation. Democracy is an aspiration that goes beyond universal suffrage, free speech, economic enterprise, and representative government; it is a continuous assay of our culture and our organized society in terms of human values that cannot be achieved so long as the personalities of men and women are warped and corroded by fear, anxiety, guilt, and hostility. We are just beginning to realize how limited are the traditional ideas of freedom and liberty that stress the opportunities for choice in overt conduct, but neglect entirely the inner emotional distortions of the personality which coerce and dominate the individual more despotically than any laws, government, or dictator. Democracy demands toleration of other individuals and protection of their integrity, however different from ours, but such toleration is possible only to those who are emotionally free and mature, who have first learned to tolerate and accept themselves and so do not need to exploit, dominate, or defeat others. Indeed, the lack of this emotional stability and inner security presents the gravest danger

⁶ See two papers by the present writer, "The Task of General Education" and "General Education To-day," in *The Social Frontier*, Vol. 3, pp. 171-73 and 209-11, March and April, 1937.

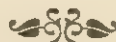
to democracy because distorted, immature, unhappy personalities will sacrifice freedom and follow demagogues and dictators with joyous abandon for the emotional release found in submission to a strong outside authority that sanctions aggression and retaliation.

Mental health and democracy are goals to be achieved anew by each generation who must give to their children a faith in human nature and a courage to live with love and understanding that can be transmitted only by warm, intimate human relationships. If each generation will strive to free its children from its emotional handicaps and personality distortions and bid them go forth to live fully and sanely, mental health and democracy will be secure. A program of mental-health education must enlist families and schools, and all other agencies for human guidance, in a united effort to protect and cherish the personalities of all children, if we are to realize our human potentialities.

O. H. MOWRER

Discipline and Mental Health

Most contemporary teachers take the position that their interactions with pupils should be of a supportive nature. The term "discipline" holds negative connotations for them; it suggests procedures not consonant with educational efforts to help children become psychologically and socially normal adults. Professor O. H. Mowrer argues for the *necessity* of disciplining children if one has a concern for their future psychological status. The statement is addressed to parents, but the student will find it equally relevant to the context of education since a teacher who agrees with the view expressed will differ in his educational practice from one who rejects it.



I

Most parents are today confused about the problem of discipline. Intuitively they feel that certain ways of dealing with their children are necessary and proper, but they are often also convinced, on intellectual or so-called "scientific" grounds, that just the opposite courses of action are the correct ones. These conflicting tendencies need to be carefully scrutinized. Perhaps we will find it possible not only to understand but also to reconcile them. Perhaps we will find that our scientific knowledge, from the clinic and the laboratory, is catching up with common sense. We have come

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to distrust common sense, even though it represents the essence of thousands of years of human experience. Perhaps we will find it more valid than we have sometimes recently supposed.

There are many reasons for the current distrust of common sense when it comes to dealing with our children. Modern medical research has demonstrated the fateful potency of germs, vitamins, hormones, and other agencies which are unknown to direct experience. These developments alone were enough to shake the confidence of parents in their own knowledge. But there are other changes, of a revolutionary technological nature, going on concurrently. What the "old folks" know is not always what the youngsters need to know. This fact has made children bold and their parents timid, hesitant to press their ways and values upon their offspring. And parents themselves have had crises to face. They have seen the faith of their fathers vanish as the mists of morning under the impact of the penetrating rays of science and the winds of modern materialism. Small wonder they lack confidence and conviction when it comes to teaching their young the way of life!

But these are only background facts as far as our immediate problem is concerned. The most powerful and direct influences which have served to topple traditional concepts and practices in child training are those which have emanated from the clinical study of sick souls. The basic writings of Sigmund Freud lie on the living-room table (or in a dresser drawer) in thousands of American households, and his apostles are the prophets of child guidance and adult psychiatry in hundreds of American communities. This man and his many followers have exerted an enormous influence upon our conception of human mentality and its management. It is here that we find the most disturbing attacks upon traditional views and values with respect to childhood discipline.

II

In his *General Introduction to Psychoanalysis*, and recurrently in his more technical writings, Freud has stressed the pivotal importance of *frustration* in the causation of neurosis. Human beings, he says, become mentally ill because they experience greater emotional deprivation than they can tolerate. Their pent-up, repressed energies and impulses, lacking full satisfaction, force themselves

into consciousness and thereby produce anxiety—the common coin of neurosis.

From this conception of neurosis it takes no expert to draw the inference:

Frustration causes neurosis.

Discipline involves frustration.

∴ If you don't want your child to be neurotic, don't discipline him!

Few, if any, parents wish their children to become mental cripples. And so, granted the original Freudian premise, parents have found themselves in a position in which they seemed either to have to repudiate the established conception of parental responsibilities or else to go against the dictates of what they take to be scientific gospel. If and when, in a fit of desperation, they do resort to disciplinary measures with their children, it is often with guilt and self-accusation. This half-heartedness and confusion is, of course, often sensed by the child and is taken as meaning that something fraudulent is being done to him, instead of something that is valid, clear in its purpose, and wholesome in its effect.

That the position in which many modern parents thus find themselves is an intolerable one goes without saying. But it is less easy to discover—and, once discovered, to apply—the remedy.

III

First we must examine the conclusion which seems to follow so inexorably from our premises. Perhaps, after all, it is true that children *can* be properly, and more hygienically, reared without frustration, without discipline. Perhaps our recourse to discipline, to warnings, to penalties, to punishments is more of a reflection of our own weaknesses and perversity than it is of any need on the part of the child. To say that a child has a "need for discipline"—in the sense that he has a need, or wish, for food, warmth, security, etc.—is, of course, clearly unwarranted. No child, at least in the beginning, *wants* to be disciplined. In what sense, then, if at all, can we say that the child needs this kind of control and training?

The need here involved is obviously something that is experienced *as a need*, not so much by the child, as *by society*. Most

adult human beings are uncomfortable if children, whether their own or those of others, are allowed to grow like Topsy. They are likely to be uncomfortable, first and most directly, because of the inconsiderate, disorderly, and often destructive and dangerous things which undisciplined children do. But adults are made perhaps even more uneasy by the prospect of what would happen if all children were allowed to remain unmannerly and unruly. Society cannot be made up of adults who know no restraint, no control, no discipline. And the adult who fails to cooperate in training children in the ways of restraint, responsibility, and adulthood generally is, in effect, confessing his skepticism concerning the worth of organized human society. Few persons, even in this hectic day, are so disillusioned and pessimistic as this!

Anthropologists who have studied other societies, both primitive and civilized, tell us that they know of no society in which adults do not, at least on occasion, find it necessary to use relatively drastic measures with their young. They may not spank their children as we sometimes do. They may hit them with the open hand or fist between the shoulder blades. Or they may not strike them at all. Perhaps, instead, they hold them under a smoke-filled blanket, or tell them of witches and demons. But, in one way or another, they find it necessary to use fairly stringent means to impose upon the young the will and ways of adult society.

Obviously, this is not to say that punishment, in and of itself, is a good thing. Nor do we have any facts to justify sadistic, brutal, stupid treatment of children. The control of children without punishment should be an ideal; and when a parent finds that he is having to make frequent use of this type of discipline, he can be sure that something is radically wrong with his approach to and relationship with his child. But if, on occasion, he finds that some type of physical chastisement is necessary, he need not feel that he has failed as a parent or that the child will be irreparably damaged by it.

From this survey, brief as it is, we see more clearly what many have vaguely felt all along, namely, the illicit character of the conclusion that we can and ought to raise children without disciplining them. Unless we wish to go counter to the bulk of human experience, we must assume what our feelings confirm, that this conclusion is not true.

In passing, it ought to be said that few of even the most slavish of Freud's followers have ever *said* that we should never discipline children; but it is an inference which many have been quick to draw from psychoanalytic doctrine and one which Freud and his followers have been slow to repudiate. Tacitly, and sometimes explicitly, it has had their approval.

But useful as it may be to identify a false conclusion, the problem goes further; we need to search out and understand the reasons why the conclusion was ever drawn, and believed.

IV

If we asked a logician to look at the syllogism presented above, he would say that the conclusion is not necessarily false, but that it is *indeterminate*. By this he would mean that, logically speaking, the conclusion may be either true or false. And he would probably diagnose the difficulty as lying in the major premise: "Frustration causes neurosis." He would want to know if frustration always causes neurosis, or only sometimes. He would want to know also if neurosis can be caused by anything other than frustration. For the major premise to be perfectly explicit and the conclusion completely determined, it ought to read: "Frustration, and it alone, causes, and always causes, neurosis."

Turning to Freud we find him saying that in all the patients he ever treated he never found one in whom frustration was not at least the *precipitating* cause of neurosis and in many cases also the *predisposing* one. But he does not say that frustration always and inevitably produces neurosis. Sometimes it does and sometimes it does not. However, Freud was vague and vacillating in what he had to say on this latter score. Why frustration does not *always* end in neurosis was a mystery which he never solved, even to his own satisfaction; and so it is not remarkable that we find him speaking most often of those persons in whom frustration does, rather than does not, appear to produce neurosis. They are the persons he saw and studied; his method did not give him comparable data concerning normal persons.

Strictly speaking, the logician is right in pointing out that, because of the inexplicit nature of the major premise in our syllogism, the conclusion that we should never discipline our children

is indeterminate; but this is not to say that the argument has been any the less effective with the logically unsophisticated. And, at most, all the logician is able to tell us is that the conclusion *may* be untrue—not that it necessarily is, or why it is.

v

What, then, of the minor premise?—"Discipline involves frustration." The soundness of this proposition seems to justify no suspicion of doubt. Only with a wild distortion of the common meaning of terms would it seem possible for discipline not to be frustrating. Discipline always involves a penalty, actual or implied; and to say that discipline need not be frustrating would seem tantamount to saying that punishment is rewarding, that black is white. Wise discipline, as we shall presently see, is useful and helpful to the child *in the long run*; but for the moment it can hardly fail to be perceived, one would suppose, as disagreeable, objectionable, thwarting, frustrating.

Oddly enough, there is a sense in which discipline may also be satisfying. In clinical practice one commonly encounters the paradox of persons, both adults and children, who, out of a sense of guilt, will sometimes court punishment as the only means they know of escaping from their intolerable self-accusatory feelings. This is a dynamism which every parent ought to understand, both for his efficient functioning as a parent and as a person. But for present purposes the important consideration is this: that which is perceived by others as punishment may be experienced by the recipient as satisfying. When this happens, the disciplinary effect is, of course, nullified. In this event the discipline ceases to be discipline and is no longer frustrating and, by implication, does not contribute to neurosis (though it serves to satisfy a neurotic strategy).

Only when would-be discipline has an over-all effect which is more objectionable than it is gratifying is it truly discipline, and in such an event it is surely also frustrating.

We are still vague about many aspects of the psychology of discipline. In fact, we do not always use the term itself precisely and consistently. But this much now seems established: in order for would-be discipline to have the desired effects, i.e., to be genuinely disciplining, the frustration, the penalty, the punishment thereby

imposed must be ultimately accepted by the child as wise and proper. The actions and attitudes of the parents must, in other words, be *internalized* by the child and accepted as his own. The conditions under which this fortunate outcome is achieved are still far from certain. But we have reason to believe that this internalization does not occur (a) if the parents make no demands whatever upon the child or (b) if they make too great or unreasonable, inconsistent demands upon him. Only when discipline is far-seeing and just and when it is underwritten by love and basic security in the child-parent relationship is it genuinely "discipline," in the sense that it leads to normal character development, responsibility, and conscience, i.e., to the capacity for self-discipline.

John Dewey has remarked that a teacher can no more teach unless there is a learner that learns than a seller can sell unless there is a buyer that buys. Paraphrasing this thought, we may say that discipline is discipline only if it "takes." Otherwise, it is sheer lost-motion, useless at best and at its worst very bad indeed.

VI

Still we seem remote from our objective. We appear hardly nearer to an understanding of our basic problem than we were at the outset. Let us try, therefore, yet another approach.

The major premise of our syllogism is that frustration causes neurosis. Certainly neurosis appears to be universally associated with frustration. Human beings can experience frustration without being necessarily described as neurotic. That is to say, they may be temporarily thwarted by prevailing life circumstances; but the person who is chronically frustrated, continually unhappy, unable, as we say, to adjust to life—these are surely but synonyms for neurosis. There is thus little doubt that frustration and neurosis somehow go together, and yet we have reason to believe that there is something spurious about the proposition that frustration causes neurosis. Perhaps the key to the riddle lies in the special way in which Freud conceived of *frustration*.

It is well known that the frustrations from which Freud and his followers believe people fall ill are mainly frustrations of the sexual impulse and of the impulse of anger, hostility, hate. These are the two impulses which human societies have found most diffi-

cult to subdue, and it is with respect to these impulses that the most severely punitive measures are likely to be used. Freud saw these facts with a new clarity, and he was impressed with the difficulty which human beings, as biological organisms, experience in tolerating the renunciations which society asks of them in respect to these two impulses. Human beings are disciplined with special rigor in regard to the impulses of lust and hatred; and it is because of the resulting frustration, the resulting limitations upon full gratification of these primordial needs that human beings become anxious and neurotic. So goes the logic of Freud.

On the basis of his own clinical experience, the present author has come to see the situation somewhat differently. Most neurotics are not less "expressive" than are normal persons, either in the matter of sexuality or aggression. In most instances neurotics present a history of more rather than less self-indulgence than does the average person, and it is only by an extraordinary feat of tortuous interpretation that one can see their troubles as stemming from too little gratification of either the sexual or the aggressive "instinct."

Yet the neurotic presents a picture of unhappiness, anxiety, confusion, frustration. Whence does it come?

The answer may be surprisingly simple, but none the less true because of its simplicity. Neurotic suffering seems not to come from the intensity of unsatisfied sexual or aggressive needs. The driving force of neurosis is an aggrieved conscience which, in the final analysis, means a fear of community disapproval or reprisal. Our biological impulses, while often imperious, are never intense enough to kill us; but an outraged community may! It is not surprising, therefore, if the internalized voice of the community, i.e., conscience, has a force proportionate to the external dangers which it reflects.

It is not possible here to give all the evidence upon which these statements rest; nor is it possible, for that matter, to present fully even the theoretical position from which the foregoing remarks are drawn. Suffice it to say that, from the author's point of view, frustration does indeed cause (or at least universally accompanies) neurosis, but it is not a sexual or aggressive frustration; it is instead moral frustration. Neurotics are persons who are ethically stunted. They are personally immature, and yet within them are forces driving them toward maturity. It is precisely the conflict between these forces and the conscious wishes and tendencies of the

individual that constitute his neurosis. In the language of psychoanalysis this newer point of view says that anxiety, guilt, depression, feelings of inferiority, and the other forces of neurosis stem, not from an id-ego conflict, but from an ego-superego conflict. The trouble, in other words, is between the individual's conscious self and the values implanted in him by his social training, rather than between the conscious self, or ego, and the biologically given impulses, of lust and hostility.

VII

All this, no doubt, still seems very obscure and complicated, but we are nearing the more enlightening part of our analysis. As a means to that end, let us turn back now to the question of the relation between neurosis and discipline.

According to the Freudian view—stated, to be sure, in a somewhat over-simplified manner—discipline produces inhibition, inhibition produces frustration, and frustration means neurosis. The contrasting point of view which we are here exploring may be stated most simply—though again somewhat overly so—by saying that human beings become neurotic, not because they have been over-disciplined, but because they have been disciplined too little and *unwisely*.

Such a statement immediately calls for amplification. We have all known individuals who were disciplined very severely in childhood and yet who turned out as adults to be either neurotic or perhaps frankly criminal. And yet the assertion has just been made that failures of adult personality stem from too little discipline. How can this seeming contradiction be reconciled?

Let us remember, first of all, that we are here conceiving of a neurotic as a person in whom there is more or less serious disharmony between ego and superego, between the conscious, executive "self" and "conscience." The ego distrusts and disdains the superego, and as the superego attacks with its characteristic weapons of guilt, anxiety, and depression, the ego fights back with such defensive devices, or "symptoms," as it may have at its disposal. The neurotic struggle is revealed with particular clarity in alcoholism: here the ego counter-attacks the superego with a form of chemical warfare, and the fact that the alcohol, if enough is consumed, eventually knocks out the ego as well as the superego is

purely coincidental. Other neurotic strategies show variation in form and detail, but the basic mechanism is much the same: they are all devices for "neutralizing" conscience, but they are devices which are so costly in their over-all consequences that we rightly refer to them as neurotic symptoms, rather than as normal habits.

In therapy the major objective is to help the neurotic to re-construct and understand the genesis of his distrust and hatred of conscience and then to help him learn to do business with his conscience instead of having continually to fight with it. Here the objective is not a mere truce or compromise solution, but rather a genuinely cooperative arrangement in which conscience comes to be seen as protective and helpful instead of arbitrary and mean. But our present concern is with prevention rather than with treatment. So let us view the problem of discipline in the light of the causation rather than cure of neurosis.

If the core of neurosis is a distrust on the part of the ego of the internalized surrogate of external authority, then it readily follows that the best prophylaxis is to see to it that external authority, or discipline, is presented in such a form that it proves wise and helpful. If this is done, the inner residue of that authority, namely conscience, will be similarly regarded, as something necessary and useful, something to be accepted, relied upon, and perhaps even cherished.

Let us say this a little differently and in somewhat greater detail. From the standpoint of insuring personal normality and mental health in adult life, the important consideration in dealing with children is to see to it that the child's experience with discipline teaches him to look upon it, not as something capricious, stupid, and malevolent, but rather as something which is consistent, wise, and beneficial. When the authoritative persons in a child's environment, i.e., his disciplinarians, display these latter traits, external authority is perceived as helpful and the internalized representation of that authority, conscience, is harmoniously integrated with the rest of the personality. In fact, it is not too much to say that in this fortunate event, ego and superego become more or less as one, at peace and unified.

When external authority is patently foolish, vacillating, and unsympathetic, there is likely to be little or no internal conflict because this authority is so completely rejected that no internalization occurs. This is the type of situation that leads to adults with

criminal tendencies or to persons who simply are said to have "no character." But when there are force and determination in external authority, and yet blindness and perhaps malice as well, that authority tends to get internalized, but it is *not accepted*. It rails against the rest of the personality, but to this railing the ego turns, as it were, a deaf ear. Such a spurned and distrusted superego causes feelings of personal inadequacy, anxiety, and depression; but because of the ego-attitude of rejection, there can be no synthesis, no harmony, but only conflict, antagonism, neurosis.

VIII

At this point let us take our bearings and see what we have thus far accomplished and what remains to be done. We have seen that the disciplining of children is not only a social necessity; it is equally essential for the development of a normal, happy, adult human being. And we can no more abandon the responsibility for this training of our young than we can renounce the whole human enterprise. Adult neurosis, we have seen, is not an inevitable consequence of discipline but is instead an expression of discipline applied unwisely, without love and understanding. Every normal individual, in passing from infancy to adulthood, goes through a transitional period, or perhaps several periods, in which there is skepticism, conflict, and even rebellion with respect to authority; but, at some point along the life-line, the individual discovers the greater satisfactions and contentments of the mature way of life—he has, as we are likely to say, a "conversion"—and he usually remains firmly anchored in that way of life. By contrast, the neurotic is the person who in at least certain areas of his personality continues to be infantile, or at least adolescent, well into his adult years. He is not, as has sometimes been implied, a person in whom the socialization process has been over-done. The less flattering but more accurate characterization of the neurotic is of a person who is under-socialized and immature and who, at the same time, has learned to protect himself against the forces which are pushing him toward genuine adulthood.

If, now, this conception of human development, sketchy as it is, seems basically correct, we are in a position to look with new eyes upon the problem of discipline. No longer is it a question of to discipline or not to discipline. No longer can we blame discipline,

as such, for our adult vagaries. Instead it is *bad* discipline that is to blame, and it is now our task to learn to tell bad discipline from discipline that is valid and useful. Of what is good and what is bad in discipline folk-belief has many, though often contradictory, things to say; and there is no want of advice on every hand. Let us here take a somewhat different and more systematic tack.

Let us ask what are the basic functions of discipline. In the most general terms we have already answered this question. One function of punishment, and discipline generally, is to make it possible for adult human beings to tolerate the human young in their midst; but over and beyond this is the necessity of training them so that they may ultimately take over the responsibilities which their elders have previously carried and thus perpetuate the way of life which their society has found good.

IX

However, we can be much more specific about the problem than this. Discipline, we discover, serves at least five basic functions:

(1) Surely the first of these is obvious enough to everyone. When we put the question by asking why we punish children instead of letting them learn by the *natural* consequences of their actions, the most immediate answer is that the natural consequences of some acts are lethal. Instead of learning from the consequences of such actions, children are likely to be killed, or at least severely injured. We scold and warn and sometimes physically punish small children in connection with all manner of dangers—fire, traffic, wild animals, irresponsible adults, disease. "Learning by doing," by directly experiencing such dangers is simply too costly, and we provide artificial social consequences, namely punishment, instead.

There is much that parents might learn about allowing their children to experience the natural consequences of their actions under carefully controlled circumstances and then teaching them to transfer the wisdom and reliability of their parents' warnings from these relatively safe situations to really dangerous ones, so that the necessity for physical punishment under the latter conditions is greatly reduced. The wise parent will also often withhold privileges as a means of discipline rather than administering physical punishment. But these considerations do not lessen the necessity,

in at least some situations, for parents to be prepared to administer, personally, some form of pain to children in place of the greater injury which might otherwise be experienced.

(2) Another use of punishment derives from the fact that the natural consequences of some acts are so remote in time that the child cannot, unaided, learn from them. A child does not learn from consequences which kill him; and neither does he learn from consequences which come so belatedly that he fails to "see the connection." Many children would be quite willing not to go to school. As Pinocchio discovered, the world offers many more alluring pastimes than does school. Furthermore, the *natural* consequences of ignorance are likely to be so remote temporally that they are experienced only after the opportunity for school-learning is past. Hence, our tendency to attach immediate social consequences to childish indolence and truancy.

Some educational theorists would have us believe that if schools were only run properly, no external compulsion would be needed. We are not here excusing those schools which are really run badly, of which there is certainly no scarcity; but what we are saying is that no school on earth can make formal education sufficiently attractive so that, without the pressure of parents, contemporaries, and conscience, children would attend it spontaneously. The consequences of illiteracy and innocence of school-learning generally are simply too remote to impress the child himself.

(3) The third function of discipline in childhood is more subtle than the two just mentioned but not less important. Let us put it as simply and directly as possible by saying that one of the major functions of parental discipline is to so sensitize children to social disapproval that in adult life they will respond to and be modified by the merest tokens, or semblances, of punishment. Good neighbors can, as we say, "take a hint," and good citizens will stop on hearing a policeman's whistle, instead of having to feel the impact of his nightstick.

It is doubtful if children who are not disciplined by parents or appropriate parent-surrogates are likely to grow up with this kind of sensitivity and responsibility. By our standards, some primitive peoples are surprisingly indulgent with their children prior to puberty, but then they come down hard, with initiation rites which we are likely to regard as unnecessarily brutal and stupid. However, closer study seems to indicate that if you postpone the disci-

plining of the human animal until puberty you then have to strike with double force, if you hope to convert him into an adult member of society who is responsive to the will of the group and a cooperative member thereof. In knocking out an adolescent boy's tooth or otherwise mutilating him, it is as if the adult members of certain primitive societies were saying to him: "This is just a sample of what will happen to you if you don't behave yourself now and don't do what is expected of you." In most instances comparatively mild reminders keep him in line the rest of his life.

Whether they do it by relatively mild measures in infancy or by more radical methods in adolescence, the adults of every society must bring oncoming generations into accord with the established ways of the group. Only in this way can the group continue to be a group.

(4) The fourth function of discipline is closely related to the third one, and yet there is enough difference to call for separate mention. Adult human beings must not only be "good" in the sense of behaving themselves; they must also be "good" in the sense that they are industrious, productive, ambitious, effective. They must value and know how to achieve the approval of their group, not only because of the things they don't do, but also because of the things they do do, and of the skill with which they do them.

Ambition, as the clinical practitioner knows only too well, *may* be a morbid and destructive force, but this is not to say that it has no place whatever in a healthy personality. Ambition may be based upon neurotic anxiety, and the psychoanalysts have suggested that in other instances it represents, in sublimated form, the disguised outcroppings of sex and hostility. Without attempting to debate the justification of these interpretations, we may safely assume that in most instances ambition represents substitution, not sublimation. Instead of being exclusively dominated by sex and aggression, the mature adult learns to find his major satisfactions in other directions, notably in the clear conscience that comes from a sense of the day's work well done, of obligations honorably discharged. This is not to say that a man does not work to have a wife and children nor that we may not strive to best a business or professional rival. But in the emotionally healthy man or woman, the sustaining force behind his or her labors is the satisfaction that derives from self-approval and from the feeling that one has done all that other members of one's group could well ask of one under the circumstances.

The individual who was wisely disciplined in childhood finds it

easier as an adult to work productively and satisfyingly than do those individuals who were not. It is no accident that the neurotic and the criminal characteristically show disturbances and inhibitions in their work habits and attitudes.

(5) The fifth and final function of discipline which we propose to consider here has to do with what we may call the realistic value of restraint and postponement. Human beings begin life under the full sway of what Freud has appropriately called the pleasure-principle. Their wishes and impulses are imperious and brook no interference or delay. Only gradually and with difficulty do the human young learn that renunciation today may be the best way of insuring plenty tomorrow. When or where our remote ancestors first discovered the advantage in not eating all their maize or beans during the lean winter months in order to have seed for the coming year we cannot say; but it involves a principle which has made a deep imprint on the mind of mankind.

So deeply has this principle of giving up as a means of gaining in the long run impressed human beings that today we sometimes seem to assume that there is virtue in renunciation as such. How often we see parents, for example, who try to teach their children to save by forcing them to amass an ever increasing sum of money. We now suspect that children learn most quickly to save if they are allowed to experience the *function* of saving, namely that by saving one can do things, make purchases, and experience satisfactions which one cannot do without saving. The child who is most likely to save his first dollar, spontaneously, is the one who has previously learned to save pennies so that he had a nickel to spend, and nickels so that he could purchase things that cost a quarter.

The wisely disciplined child learns to make both the renunciations which are in his own individual interest and also those which are in the interest of his group. If renunciation is a virtue it is also a part of wisdom and—need we add?—an attribute of the mature, happy, and healthy personality.

x

In recent decades it has been unfashionable to speak up in support of discipline, responsibility, and duty. Self-expression, freedom, and personal liberty have been the popular rallying cries. Merely

because we have discovered the unhealthy after-effects in the lives of some unfortunate individuals of stupid and brutish discipline, we have jumped to the conclusion that it is discipline as such which is to blame. On both theoretical and pragmatic grounds we now know that discipline, properly conceived, is not only necessary for the maintenance of group life but that it is also necessary for the normal development and adult happiness of the individual.

In an era when fascism, with its fanatic emphasis upon discipline and obedience, has led to so many hateful and tragic events, it is easy to assume that discipline and the democratic way of life are antithetical. Let us not be misled: The parental discipline of children which leads to maximal self-discipline and personal maturity in later life is an absolute prerequisite for the healthy functioning of a democracy. The fascist state extolls discipline and adult obedience precisely for the reason that it wishes to keep the adult population personally immature, the better to exploit and enslave it.

So let us face up to the admittedly difficult but essential task of disciplining our young. We are, of course, intent upon not employing would-be disciplinary methods which make for resentment, rebellion, or apathy in children and thus alienate them from rather than align them with organized society. But on the other hand, it seems equally misguided to assume that merely because disciplinary endeavor can go wrong, we can or should abandon it altogether. It is probably as fallacious to assume that a child can develop into a psychologically and socially normal adult without discipline as it is to assume that a society can exist without it. Complex group life is a human invention and one that is maintained only with vigilance and continuous effort. No society can long exist that makes no demands on its adult members and exacts no toll of those who do not meet these demands. And any education which does not prepare the young for the restraints and responsibilities of such an existence is failing in its manifest function.

In the foregoing pages comparatively little attention has been given to questions of what-to-do-when. Perhaps the most common type of inquiry which one hears from parents is of this variety: What should I do when Johnny won't eat his spinach? How should I act when Mary is rude to guests? And so on and on. The reason parents seem so helpless in the details of child management is that they are confused at the level of underlying assumptions.

In the preceding pages we have tried to deal with basic principles and fundamental attitudes and values. When one is clear about the essential logic of child training and is free from emotional confusion, one usually finds the will and the way for dealing with specific problems. And all the advice in the world on how to handle this or that specific situation does not give parents the genuine competence for which they seek nor their children the training and trust in their parents which they need.

In the preceding pages it may appear to some that punishment has been emphasized too much and the importance of love stressed too little. Again let us point out that only those parents who love their children deeply and devotedly can discipline them properly. To the child who feels rejected by his parents, even the most severe of physical punishments or deprivations may serve only to confirm his feelings of resentment and his desire for retaliation. But for the child who is secure in his parents' abiding affection and who cherishes a similar love for them, for such a child a mere disapproving look or warning word may be profoundly more effective as discipline than any amount of physical chastisement.

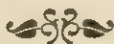
A rich store awaits someone who will make a careful study of the Bible, not from the standpoint of theology, but from the standpoint of psychology. Here let me call your attention to but one passage, which neatly presents the principle involved in the dynamic relationship between discipline and love: "For I say unto you, That unto every one which hath shall be given; and from him that hath not, even that he hath shall be taken away from him" (Luke, 19:26). The parent who has little love for his child is likely to have still less as a result of his disciplinary efforts. In terms of the modern psychological clinic, a "vicious circle" is created. Whereas, in the case of a parent whose love is great and abiding, the effects of discipline are likely to be such that his love will be made stronger still, thereby creating what may be called a "beneficent circle."

This discussion of discipline and mental health is manifestly incomplete and raises, perhaps, far more questions than it answers. But it will have served its primary purpose if it but indicates the fallacy of the widespread contemporary belief that discipline is the specific cause of mental disorder and that the latter can be prevented only by some fantastic policy of child training that involves no discipline.

LAWRENCE S. KUBIE

The Psychiatrist Considers Curriculum Development

Although the psychiatrist has considerable stake and interest in the conduct of education, direct representation of his views on educational method is found only infrequently. Psychiatric thinking has influenced education by its assimilation into the views and interpretations of psychologists in education. In a sense, this is unfortunate since it obscures the extent to which psychiatrists of different schools differ in their conceptions of educational method. Dr. Laurence S. Kubie, a prominent American psychiatrist, speaks frankly about the relationship between his own psychiatric concerns and the demands of what he understands to be "curriculum development."



Some day education must take on the responsibility of helping to prevent the distortion of human development which we call the neurotic process. The goal is quite clear to me, but the methods must still be developed. The goal is to attempt to prevent or minimize the dichotomy between conscious and unconscious psychological processes—a dichotomy which occurs in every infant and child, and which determines the role that unconscious forces will play throughout life. This is an intricate topic. To make it entirely clear would require a discussion of what we mean by the contrast between normal and neurotic; what we mean by the contrast be-

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tween conscious and unconscious; and why it is that man's capacity to think in symbols can at the same time make possible his highest development and his neuroses. In other words, we must face the fact that the universality of neuroses in human life is the price we pay for our highest capacities. Education has not yet attacked the problem of how to develop these highest capacities of *Homo sapiens*, while at the same time preventing their neurotic distortion. This, then, is my objective, and I shall discuss curriculum only in relation to this, because to me it seems the most important goal of education. In short, I have placed education on the front firing line of preventive psychiatry.

Consequently, I have to acknowledge that when confronted with a symposium on curricular change, my immediate reaction is to ask, How important is curriculum anyhow? My bias in the matter is that curricular changes and curricular concepts are of importance in the education of the head, but almost meaningless in the education of the heart.

This led me to look up the meaning of curriculum. To my surprise I discovered that curriculum is derived from the word *curricule*, which means a light, two-wheeled open carriage drawn by two horses abreast. Then all became clear to me. We are the light, two-wheeled carriages, and the two horses abreast are obviously the head and the heart. This gives me a wonderful out. I will turn the head over to educators and give my attention in good conscience to the heart.

In any ultimate analysis human advance always depends on the development of new techniques. Sometimes it happens that scientific foresight can pose questions and advance theories of such a nature that as soon as an appropriate technique is developed its use is understood. At other times, new techniques appear before their full significance is appreciated. They may even remain unused for a long time, or be misused, until scientific thought catches up to them. It seems to me that in education we need both a new (or at least a more inclusive) definition of the goals of education and new techniques for reaching those goals. In this discussion all that I can hope to do is to present a conception of these goals from the psychiatrist's viewpoint. The psychiatrist cannot pretend to know how those goals can be reached. He knows something about therapy—that is, about the techniques by which individuals who have been

diverted from the path of normal development can be brought back to healthier ways. However, the techniques of therapy and those of education, although they are related in many important ways and have much to learn from each other, can never be identical. As a psychiatrist, I want to emphasize this, lest it be thought that the members of my profession are blind to these differences.

As a psychiatrist, I do not believe that we know the answers to the questions that should be asked; neither do I believe that educators today have the answers. I have in mind a specific point. I think that what we need to add to the goal of education is something that can be called emotional maturation, but as far as I have been able to observe, this cannot be imparted by the same methods as those that are used for intellectual maturation.

By emotional maturation, I mean essentially self-knowledge in depths, and the harmonious coordination and integration of conscious and unconscious levels of the personality. It is this self-knowledge, a self-knowledge which penetrates below the level of conscious awareness, which integrates all levels in the make-up of the human being who is the forgotten man of our educational system.

Perhaps it is inaccurate to use the word "forgotten," since it implies that he has once been known, and this is not true. Indeed only in recent years has it been possible to sense the full significance of the dichotomy of the human spirit which occurs during the development of every human infant and child, the dichotomy between conscious and unconscious levels of psychological organization. It is rather the little man whose existence was not even known, the little man who will ultimately become the lord of human culture if we do not destroy ourselves in the meantime.

At this point a brief resumé of a few steps in the recent history of educational philosophy is desirable to place this goal in true historical perspective. The first step might be called the emancipation from the idea that, like medicine, education must "taste bad" in order to do us any good. This was a step toward unseating the great god discipline from his tyrannical throne. It was a step toward breaking down the curious, fantastic, and unrealistic distinction that mankind has made between work and play. The second step brought emancipation from a second fetish, the fetish of the "trained mind"; that is, the idea that when the mind is used on one subject it acquires an almost mystical capacity to deal easily with

another. These two advances recognized first that discipline is often a euphemistic way of referring to the destructive influence of coercion; and second, that the trained mind in actuality turns out to be a trained heart. Without these two steps the third step which we are now facing would be impossible.

It should be remembered, however, that these two advances also brought with them their inevitable temporary fallacies. All new ideas must be misapplied many times before we learn to apply them correctly; and it was inevitable that this should happen in the educational field.

In the first place, these two developments, together with the early and rather naive interest in unconscious psychological processes, led to a confusion to which I have already alluded, namely the confusion between therapy and education. This is a matter of great importance; but it is not relevant to the main theme of this discussion.

Secondly, these two developments led to an increasing dependence upon the child's conscious interests as the compass and guide to lead him through successive steps in his education. Unfortunately, this is an erratic and undependable compass, because a child's conscious interests are symbolic representations of his unconscious yearnings and hopes, his fears and angers and regrets, all interacting in his mind in a complex pattern. Indeed, all through life our interests are more dreamlike than we are willing to believe. It will be difficult for many of you to believe me when I say this, or to apprehend its full significance. It is only after one has had an opportunity to study the conscious and unconscious levels in the developing personalities of many human beings that one gradually comes to understand the strange way in which a child's interests, whether at work or at play, serve as a masquerade for intricate buried emotional problems with which he may be struggling. I can give some illustrations of what I mean, but they may seem hand-picked and exceptional and scarcely credible, and they cannot possibly carry the conviction that I should like them to convey. They may, however, serve to make my meaning clear.

Yet it is important to keep in mind that a child's apparent interests are often misleading representations of his internal problems. This fact has a great deal to do with the capacity of the child to sustain his interests and to enjoy success, as well as to profit by

the lessons of failure. We know that this is true in the adult world. We know that men pursue careers successfully only to end up in depressions, when the career turns out to be a faithless jade, a miserable substitute for unconscious goals. This has been realized in the adult world for many years, but it has not been recognized that it is equally true at the level of the child's interests. Nevertheless every educator knows how ephemeral these interests can be, and how easy it is for a child to double back on his tracks and turn against those very activities which for a time seemed to absorb him.

Let me give you a few examples.

A brilliant young girl in early adolescence developed a passionate interest in Greek sculpture, costumes, culture, political organization, and literature. Suddenly the interest all evaporated. She stopped all studying, and after being a leader in her class dropped to the bottom. On investigation it gradually came to light that what had captured this youngster's interest in Greek civilization was the fact that the men and women seemed to dress alike, which meant to her that they *were* alike; that this was a world in which the difference between herself and her brother, a difference against which she was rebelling, did not exist. This strange, mysterious, unreal world was what Greece meant to her. A chance remark from her teacher suddenly exploded this fantasy, and plunged the girl into reality and into a depression in which she felt enraged, cheated, and resentful. It was this disillusionment which initiated her sit-down strike.

A little boy of seven became in essence a cartographer. Not only did he take great joy in the most painstaking and meticulous execution of maps, but he also memorized timetables of train services all over the world. He became the class spokesman in all matters that had to do with things geographical. Geography led to history, history to politics, politics to the law. There, unfortunately, he tumbled into an illness which had many serious schizophrenic features. It was not an irremediable illness, however, and in the course of time and as the result of long searching treatment, the meaning of his early interests came to light. He had lost his mother in a foreign land when he was four. Then shortly before he was seven he was taken on a trip, and during his absence his nurse, on a visit to her home in Scotland, died there. In each instance death had been described to him as "going away," and the youngster's

heart and soul had become entirely absorbed in an unconscious fantasy of finding again these two whom he had loved and lost. I have seen the same kind of response more than once as a reaction to the early death of a parent who was far away at the time.

Another lad at an early age became a radio expert in a modern school. He built radios galore, but he never played them. His almost obsessive preoccupation with electricity carried him through school and college and into graduate training in mathematical and nuclear physics. Then the break came when he found that his mathematical processes were touching off violent erotic excitement, often culminating in orgasm as he worked. Illness brought him to treatment. Treatment led us back to the earliest sources of his illness, which were identical with the original roots of his interest in radio. This started with a panic at the sound of a telephone bell, panic which related to many highly charged early problems the nature of which I had better not discuss at this time, beyond saying that the radio meant keeping in touch with his absent father to protect himself against certain fears which were generated by his mother's overstimulation of his erotic fantasies and needs.

Let me give one other illustration. A gay, eager, and extremely intelligent youngster, always the leader in her class, went through a long series of special interests: American Indians, Vikings, writing, painting, the modern dance, piano, economics, and several others. (Bear in mind that they began with Indians and the Vikings.) She wrote stories about little Indian and Viking boys. She painted their pictures. She dressed up to look like them. She acted their roles in little plays. She danced them. It turned out that in all of these "interests" she was acting out in infinite variety her fantasies of being made over in her older brother's image. In the end, however, since every activity left her unaltered; since everything that she attempted failed to work this magical change, it is not strange that in spite of her exceptionally high endowments she should run through such a long series of changing and inconstant interests.

These striking examples are by no means unusual. In less dramatic fashion similar forces shape the interests of every child. Furthermore, the child who develops the ability to use words at an early age is the one whose apparent interests are most symbolic. The precociously verbal child always uses words which he does not

understand in a real sense. The fantasy content of speech always is greater than we realize, and the earlier verbal facility develops, the greater is the role of fantasy in the use of words. Sometimes this makes me wish that in some magical way adults and children would not share the same language; because when a child uses adult speech, he fills this bottle with wine of his own imagining, a wine which the adult cannot recognize.

If this is true, then we must ask ourselves how much difference does the curricular appeal to interest make? How much difference does what we study make? What function does interest serve? To me it seems that a child's interests are important primarily as a clue to his underlying emotional conflicts and make-up; and that his capacity to pursue his apparent interests in a sustained way spontaneously and without external pressure is a quantitative measure of the relative roles of conscious and unconscious forces in the organization of his personality and his activities. With this in mind, the curriculum becomes a kind of divining rod, a diagnostic test instrument to tell us something about the child. This may be more important than its pedagogical value in formal education.

I believe that the next problem which education must solve is how to lessen the dichotomy to which I have already referred, the dichotomy between conscious and unconscious levels in human personality.

In focusing on curricular problems, the Conference of Leaders in Curriculum Development implies that the nature of the subject matter studied, its organization and arrangement, and the method of presentation are matters of primary importance. My emphasis is the other way around. It is that the eagerness and aptitude, the duration of interests, the level of interest which is maintained, the attitude of activity or of receptivity—all of these are expressions of multiple and complex forces lying deep within the student's personality, forces which play themselves out on the curriculum. In my experience curricular innovations may cause at most a brief flurry of initial interest, which lasts only as long as the new subject matter carries with it a promise of some kind of secret magic, but no curricular change ever causes lasting differences in a student, or makes half the difference that a change of teachers can work. This in itself is significant because it places the emphasis where it really belongs, namely, on the fact that in his relationship to the

process of acquiring knowledge a child (and for that matter an adult too) expresses directly or indirectly the quality of his relationship to other human beings.

All of this depends then upon the incessant, unstable equilibrium that exists in all of us between conscious and unconscious forces. Education as we now conceive it plays a direct role in the conscious area only. The goal of *psychotherapy* is always to expand the area of conscious control in human personality and to shrink the empire of unconscious control. The goal of *education*, as I hope it will some day be understood, will be to use every technique which it can muster to prevent, correct, and limit this fatal and universal dichotomy in human development.

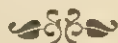
I should like to see this begin in the kindergarten. There is where I feel sure that we could apply to infants and children the techniques of education which during the war frequently were used with troops, under the name of group therapy. Instead of bringing up infants and children under a system of taboos which make it impossible for them to talk among themselves or to adults about their hates and fears, their jealousies, their bitterness against the adult world, their bodily shames and envies and lusts, all of this could be lived out, acted out, and talked out in groups from the nursery years on. This would be a process of socialization for the savage human infant and child which would tend to block and to counteract those forces which exist in everyone and which make us repress into unconsciousness the most vital emotional problems of our development.

I have sometimes called this the Fifth Freedom, the child's right to *know* his own feelings and thoughts and impulses—not to act them out blindly, but to be consciously aware of them. This to me is where education and preventive psychiatry merge. And this is where new techniques, which have nothing to do with curricular developments, are sorely needed.

STEPHEN M. COREY

Designing a Curriculum for Student Development

The organization of a *subject-matter* curriculum is a comparatively easy task at any educational level. But the educator involved in designing a curriculum that will, in addition, maximize pupil growth in personal-social organization is confronted with an immensely difficult task. Professor Stephen M. Corey presents here his views of the requirements of such a curriculum at the secondary-school level and offers specific advice regarding common difficulties that arise in planning for and working with adolescents in school contexts. Of particular interest to the student are the comments and suggestions regarding ways in which the teacher can acquire the necessary knowledge about his adolescent pupils.



Every responsible secondary-school educator I know insists that the needs and interests of adolescents must be considered in designing a secondary-school curriculum. Similarly, the great majority of secondary-school educators claim that teaching in the high schools would be better if teachers and administrators had a penetrating understanding of the way adolescent youngsters grow and develop. There are many arguments, usually heated and sometimes enlightening, about the relative amount of attention that should be paid to the personal needs of teen-age boys and girls. Some say that the

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concerns of adolescents should be given maximum weight in building the secondary-school curriculum. Others say that, while these concerns are important, they are apt to be ephemeral and transitory, and major attention should be directed to selecting and organizing those aspects of the cultural heritage which must be learned. Despite these arguments, there is general agreement that the way adolescents develop must be taken into account.

It is exceedingly fortunate that few high-school teachers or administrators claim, as do many university professors, that knowledge of subject matter is all that is necessary for good teaching. Extensive familiarity with the facts and generalizations of science, of physical science, and of the various humanistic studies is a necessary condition but not a sufficient condition for effective high-school instruction. Sufficient conditions obtain only when there is added to the teachers' mastery of "subject matter" a sympathetic understanding of the personal needs and interests and wants of adolescent boys and girls. Unless both types of competency characterize high-school instruction, pupils will learn very little of benefit to them.

CONSIDERING PUPILS' NEEDS AND INTERESTS

This does not mean that teen-age youngsters are unique. Everybody in the world learns only when he believes his learning will enable him to get something that he personally wants. This fact is frequently lost sight of in schools because they do not represent voluntary learning organizations in the sense that an adult education program is usually voluntary. Rarely does an adult educator state explicitly, or even imply, this belief: "We will give them what is good for them whether they like it or not." The reason is that, if such an attitude were acted upon, the adults would stay away from the adult education program in large numbers.

School is different, though. Pupils cannot stay away. They can, strictly speaking, but the consequences are so unpleasant as to mean that a school must literally be intolerable before youngsters will stay away from it and accept the various types of punishment in which truancy results.

Compulsory education is not an unmixed blessing. It sometimes acts as a deterrent to the improvement of curriculums. As

long as society requires that pupils attend particular schools, one excellent test of their value is precluded. The test I have in mind is the natural test of the worth of any activity; namely, the number of people who voluntarily choose to participate in it. Schools suffer from the sickness that is apt to characterize any monopoly. In most communities there is only one high school that a particular youth can attend. I have often thought that considerable advantage might be gained if, in every city where there were at least two high schools youth might choose to which one they want to go. I recognize that certain difficulties would be involved, but, if the enrollment of one of these two high schools—or if not the enrollment, the number indicating they wanted to attend—were 2700, whereas only 300 chose the second, any inquiry would be in order.

Most of us adults find it difficult to attach very much significance to the opinion high-school boys and girls have of the importance of their lessons. They, of course, make up their minds as to the worth of a curriculum in terms of the extent to which it is related directly, and obviously, and sensibly to what the boys and girls themselves want. We adults, in our superior wisdom, are prone to believe that young people going to high school are not in a good position to judge whether or not they are learning valuable lessons. My guess is that no other *single* group is in better position to evaluate the secondary-school curriculum. I would not argue for any evaluation based on the estimates of one group only, but if I had to choose one group, my choice would be easy.

To design a curriculum that takes into account the developmental needs of adolescent boys and girls requires that we learn a great deal about adolescents. This is difficult learning. For one thing, our age stands in the way. I recently heard an argument between an adolescent boy and his father. The boy wanted to go with the gang and do a lot of things that the father thought silly. The father finally said: "I can't understand why you want to do those things." The boy answered, rather hopelessly: "You're too old to know." That was an insightful remark. Unless we make a strenuous effort, most of us are too old to learn about adolescents.

If someone invited me to design, in some detail, a high-school curriculum based on the developmental needs of adolescents, I would refuse the invitation. If I were asked, however, to recommend what might be done to assure, in due course, a curriculum that

would more nearly meet the needs of adolescents I would say: "Do everything possible to encourage teachers and administrators to learn as much as they can about teen-age boys and girls."

Regardless of the subject matter he teaches, a high-school teacher who understands about adolescent development will do much to serve the needs of adolescents. This should not imply that one subject is just as good for a high-school student as any other. What I mean is that even Sanskrit *per se* would be tolerable, and the side learnings might be beneficial if the Sanskrit were taught by a teacher who had taken time to learn a great deal about teen-age boys and girls. The chances are that Sanskrit as such would not be taught very long.

CURRICULUM BUILDING A GRADUAL PROCESS

Curriculum building is a gradual process. It is much more like remodeling a house than it is like building a new one. I recognize that this is not an unmixed blessing, but it is a fact. In the first place a new curriculum would require teachers who had suddenly become different. No one, with the possible exception of a religious convert, suddenly becomes different. Everyone starts from where he is, with a large body of skills and understandings and values that give him what security he has. A new curriculum, and it would have to be new if it were specifically designed to serve the developmental needs of adolescents, would demand for its operation a new body of information, a new bundle of skills, and a new system of values.

Hence, I am not disposed to describe any new curriculum but rather the process which may result eventually in a curriculum better adapted to the real needs of adolescent boys and girls. I am convinced that if high-school teachers and administrators are helped to realize the extreme importance of knowing a great deal about adolescents, as well as a great deal about various subjects, they will gradually work out an improved curriculum that they can handle.

Learn the Psychology of Adolescence

In general there are three different ways for adults who work in high schools to increase their understanding of teen-age boys and

girls. The most common method is to read articles and books about the psychology of adolescence. This method undoubtedly has some value, but the benefits of reading as a method of learning are probably greatly exaggerated. The only point to having high-school teachers learn about adolescent boys and girls is to enable the teachers to behave more effectively when dealing with their pupils. There is a vast difference, as everybody knows, between having in one's mind a body of facts and generalizations about adolescents and being able to behave consistently with these facts and generalizations when in the presence of adolescents. I have an eighteen-year-old boy, and I have read a great deal about adolescent development. Frequently what he does I understand—that is in my head—but my stomach is still rebellious. One of my friends who probably has acquired from reading about as complete a stock of information about adolescent boys and girls as anybody in the country is at his wits' end in fifteen minutes when he has to teach a class of live adolescents. He knows a lot of information, but he cannot put it to work.

Recall Your Own Adolescence

Another interesting way to get insight into what is going on in the minds of teen-age youngsters is to try to recall one's own adolescence. This is helpful, but it is also hard and humiliating. I recently heard a group of men teaching in secondary schools talk for a couple of hours about the Halloween pranks they played as boys. Yet when it was reported that one of the high-school youngsters did something that, judged objectively, was nowhere near so bad, these men were furious. Not long ago I was able to eavesdrop on the conversation between a dean of girls and a very attractive high-school sophomore who apparently had said rather forthrightly that she thought boys were more important than algebra. The dean of girls was indignant at this "childish" conclusion, but, when the dean herself and I were students at the University of Illinois, it was clear from her behavior that she thought boys were more important than almost anything else. Even then she probably paid too much attention to her studies, because she got a degree but no husband. Maybe this explains her inability to understand the high-school girl.

Study Your Pupils

The third and best way to gain more insight into what makes secondary-school youngsters tick is to study the ones who are around the high school day after day. It is surprising how many teachers and administrators can spend forty years teaching secondary-school boys and girls and yet know almost nothing about them. This is possible because in most high schools few rewards are given for understanding youth. The rewards go to those who are able to teach the most subject matter and maintain the best discipline. Few secondary-school administrators have been inventive and ingenious in providing ways and means for teachers to work together reaching a better understanding of teen-age boys and girls. When such provisions are not made, teachers probably are correct in inferring that their "superiors" put little premium on such understanding.

Including as part of any inservice program activities that will enable teachers to learn about youth, and hence develop a curriculum based on their developmental needs, requires much more than an occasional 4:30 lecture by a visiting fireman. Teachers in general are now very busy doing the things required of them. To add a great additional task to what was already a full-time load is unrealistic. One creative step that has been taken in at least one school was the establishment of a pupil study clinic on school time. The purpose of studying pupils in this clinic was primarily to enable teachers to learn more about the pupils. The theory was that intensive and practical observation of a few pupils, with consequent increased understanding, would result in better appreciation of the problem facing all pupils in that age group.

The clinic I am talking about operated something like this: The name of a particular student was referred by a teacher or several teachers to the high-school guidance official. The referral usually resulted from the fact that the student had had some adjustment difficulty, academic or otherwise. During the clinic session devoted to this youngster the various school officials, as well as the teachers who had had him in their classes, pooled their knowledge about him. They tried to identify items of information that would have some bearing upon his particular adjustment difficulty. All of this information—and sometimes the quantity was surprising—was then summarized by one of the teachers who acted as a clinic secretary, and a rather lengthy abstract of the case was typed. These ma-

terials were then studied, and, in light of them, certain recommendations for treatment were made by the members of the clinic. These suggestions were as specific and concrete as they possibly could be made. An abstract of them was sent to all of the teachers who had had the student in their classes.

It almost always happened that the members of the clinic came to realize that there were many items of information which they needed but did not have. These gaps in the record were indicated and whoever in the school was in the best position to get the information proceeded to do so.

The clinic sessions aimed at recommending procedural and environmental changes that gave promise of helping the youngster. Whatever was learned about him was put to use. The information accumulated was not academic. It was dynamic and useful. The test of the validity of this information was the effectiveness of therapy. The exact nature of the information to be accumulated was not indicated by a long outline of facts which some one else said teachers should know, but rather by whatever information the teachers believed was significant in dealing with the youngster's specific difficulty. Clinic sessions of this sort made it clear to secondary-school teachers, who previously had not thought much about the matter, that it was necessary to know a great deal about a pupil before much could be done to help him.

One of the best books I have read on this subject was published by the American Council on Education. It is called *Helping Teachers to Understand Children*. This book makes it clear that it is not easy to help an entire faculty reach such understanding. The book also makes clear that before a curriculum which takes the facts of adolescent development into account can be implemented, the teachers must themselves learn about adolescents. I also recommend to your attention a new motion picture produced by McGraw-Hill, called *Learning to Understand Children*. This 35-minute film will go a long way to convince teachers that knowing about the problems of an adolescent is frequently a prerequisite for teaching him.

DEVELOPMENTAL TASKS

Whenever teachers do study their own pupils, watching them thoughtfully and trying to draw generalizations from what is seen, they learn that in ever so many ways teen-age youngsters are alike.

They are all struggling with some exceedingly important developmental lessons that have to be learned during adolescence. I am not talking about lessons in the sense of assignments high-school teachers habitually require. I am talking about developmental lessons that boys and girls must learn if they are to make a reasonably adequate adjustment to their culture. I want to spend the next few minutes talking about some of these developmental lessons or developmental tasks. I am convinced that at least one of the major responsibilities of any secondary school is to help boys and girls to become better in achieving these tasks. A curriculum designed for adolescent development would make them the center of attention.

Everyone who has watched youth grow up, whether he be a father or a mother or a teacher, realizes that it is during adolescence that boys and girls first become very much aware of their own bodies. During early and middle childhood, arms and legs and faces are more or less taken for granted. Children use their developing bodies, but they do not notice them particularly. Along about age eleven, twelve, or thirteen, however, and usually some eighteen months to two years earlier for girls, boys and girls become quite conscious of what is going on within their bodies, and of the way their bodies and faces look to others.

Now adults are apt to be impatient with adolescents for paying so much attention to the way they look. The spindly fourteen-year-old boy who wants to look manly and puts four or five handkerchiefs under each shoulder is apt to be ridiculed by his father. This is the case, even though the father himself wears a well-tailored coat with greatly exaggerated shoulders. The boy's mother may scold him for being childish even though she practices some deceitful modification of her natural contours. The problem the boy was struggling with was a real one for him. He was trying to come to terms with his body. Within fairly narrow limits, everyone has to accept his own body and appearances. Adolescents are particularly anxious because they have to accept a new body and new faces in the rapid and dramatic changes in their contours and appearances.

I wish that high-school teachers and administrators could realize how crucial appearances are to many boys and girls. The boy, who is exceedingly and constantly embarrassed because he has acne, has his mind on that problem much of the time. The same is true of the girl who is in anguish because she is some thirty pounds over-

weight, or thirty pounds under-weight. Some of you may remember your early adolescence. I ate six yeast cakes a day for several months the first time I had pimples on my face. It took me that long to find anyone sufficiently interested in my welfare to point out to me that eating half a dozen candy bars a day might have something to do with my complexion. Nothing I was learning in school gave me any insight into this serious problem.

A second important developmental task adolescent boys and girls must learn involves working out new relationships to their age mates. Probably the most important and most difficult of these relationships are those involved in playing the proper sex role. Preadolescent groups most commonly are single sex groups. During that period, boys and girls are somewhat contemptuous of one another. When adolescence comes, however, their attitudes change decidedly and they want to be mutually attractive. Even a superficial observer of high-school society cannot help but conclude that ever so many youth spend most of their time trying to learn what to do to be more attractive to the opposite sex.

It is common knowledge that these sexual adjustments are difficult for American youth for a number of reasons. In the first place, while they mature physiologically along about the age of fifteen, sixteen, or seventeen, a very large number of boys and girls cannot behave consistently with this physiological maturity for six or seven years. Society won't let them, if they are in the middle class as most high-school pupils are. This situation makes for a great deal of strain.

A second reason for the difficulty high-school children have making wholesome heterosexual adjustments is that many of their parents won't give them helpful counsel for fear of losing face. A mother, who might be able to talk realistically to her daughter about the pleasures and hazards of pre-marital love making is reluctant to do so. This would risk the fiction of parental perfection, narrowly defined, that most fathers and mothers try to perpetuate. Unmarried high-school teachers are even in a more compromising position. They are not supposed to know much about sex other than what comes out of books, and anyone can read. The consequence is that high-school boys learn about heterosexual relations from each other or from pornographic literature. Both of these sources are interesting, but neither is dependable. The unrest of high-school

boys and girls about sexual matters is genuine and the problem is important. The ignorance of adults in this area is reflected in our divorce courts. There is little to indicate that this generation of adolescents will be much better than we are—such is this world's sadness.

A third developmental task or series of problems that adolescent youngsters face as they try to grow up involves the new relationships they must develop to their parents and to other adults. This problem does not cause only fathers and mothers a great deal of difficulty. During adolescence many youngsters become rebellious toward all symbols of authority, including teachers. This is a factor in the relationship of high-school boys and girls to teachers and principals and sometimes to police officers. Adults of whom boys and girls really are fond and whom they have learned to respect are usually influential. The great majority of adults are not in this category, however, and teen-age youth are resistant not only to suggestion but also to authority as well.

This is as it should be. If young people are to become adults, they must escape from the domination of older people who constantly are telling them what to do. We older people like to tell adolescents what to do. It makes us feel powerful. We rationalize by claiming that teen-age youngsters have immature judgment, which is true by definition, and then we do everything we can to keep them from maturing.

As high-school youngsters try to be grown up, they frequently mistake the form for the substance—they mistake the symbol for the real thing. This is disturbing to adults. Girls feel like women if they use a lot of make-up, do their hair right, stay out late at night, and choose their friends without parental interference. Many boys feel like men if they swear, smoke, drink beer, stay out late, dash around in a car, and "sass" their teachers. These ways of being men and women are not good ways, but the desire to be grown up is natural and worthy.

Boys and girls must become men and women. They must develop self reliance, a sense of responsibility, and independence. They must learn to live on their own. They need practice trying to work out their destinies, and they must be permitted to suffer the consequences of their mistakes; or at least most of them. This is not happening when a high-school principal scolds two eighteen-year-old

boys, calls them irresponsible for cutting school, and then requires that they bring notes from their mothers explaining the cuts.

Developmental tasks such as the three I have commented upon could be enumerated at some length, but I see little point in doing so. Thirty pages are devoted to such an elaboration in the book published by Harper and Brothers in 1946 under the auspices of the John Dewey Society and entitled *The American School*. The point I would like to emphasize is that these lessons which our society requires young people to learn during adolescence occupy their attention most of the time. Anyone who wants sincerely to help teen-age boys and girls grow up must learn as much as he can about these developmental tasks.

We frequently hear teachers say that "good" boys and girls are able to get such mundane things out of their minds and attend to subject-matter abstractions. The point of view is unrealistic. Boys and girls do like to be together in a high school. Social life is a requirement for them to learn some of their developmental lessons. If, in order to be permitted to stay together in a high school, these youth must memorize the states and their capitals, this will be done. They are willing to pay the price in order to gain other ends that seem to them to be worth while. The great majority of boys and girls who attend to subject-matter abstractions probably do so because they must in order to gain other satisfactions that mean a great deal to them.

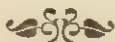
I never visit a secondary school and watch the boys and girls mill through the corridors as they go from class to class without feeling humble in my ignorance as to what really is going on in their minds. I feel so often that the gap between them and me is almost unbridgeable. On the other hand, I know of no better exercise for a secondary-school teacher or administrator than to work hard at the job of trying to find out what it is boys and girls value and think important. It is only through understanding these aspects of adolescent life that teaching can be made vital and meaningful. It is only through such understanding that a curriculum can eventually be designed and built for student development.

CELIA B. STENDLER

A Study of Some Socio-Moral Judgments of Junior-High-School Children

Educational plans concerned with pupil adjustment necessarily involve consideration of the nature and origin of the learner's moral judgments. At an earlier period in the history of education, this was not a difficult problem. The pupil was confronted with an ethical norm; he was taught to verbalize this norm; when he departed from it, he was punished, and when he conformed to it, he was rewarded. Today's teacher cannot be so comfortable. His increased philosophical sophistication suggests that the very nature of a moral judgment is a complex question. His increased psychological knowledge makes it clear that the "punishment-of-badness, rewarding-of-goodness" curriculum does not produce the desired results.

Although we may be skeptical of older approaches, our current knowledge is still insufficient to provide clear-cut answers to the problem. From the educational psychologist, for example, we need more data on the actual moral behavior of children. Where do they get their ethical norms? How consistently do they apply them? What rationalizations do they offer for their moral judgments? Professor Celia B. Stendler offers some interesting data in response to these questions. She also provides the student with an analysis of the socio-philosophical background of the more general problem.



This is an investigation of certain socio-moral judgments held by adolescents with regard to property. Specifically it will be an attempt to see whether high school juniors differ in their judgments

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on the act of stealing from a large corporation and stealing from a private individual. Observations of the behavior of adults in our industrial society would seem to indicate that this is a problem of major concern. Industrial concerns report each year that tremendous quantities of goods mysteriously disappear from factories and cannot be accounted for. All around us former G.I.'s wear pea coats, windbreakers, aviators' jackets, or other articles of apparel, the ex-serviceman's legal right to which might be questioned. It would appear there are large groups of people who are disregarding or have disregarded traditional moral and legal principles.

The problem of what is right and what is wrong with regard to property is one small aspect of the problem of redefining moral values in an industrial age. When the face-to-face relationships of an agrarian society were the order of the day, or when locally owned and paternalistically managed factories prevailed, it was much easier to apply traditional moral principles in making a distinction between what was stealing and what was not stealing. In a large industrial civilization relationships are impersonal and complex ethical norms, which once were adequate and which were considered absolute, are increasingly losing their efficiency.

Particularly is it difficult to apply traditional norms toward those remote groups in our society whom we never see and with whom we have no intimate contact. As Sorokin ably puts it:

As the social distance between us and other human beings increases, the intensity of our solidarity progressively decreases. The intensity of our solidarity and love, especially in our actions, is considerably lower to persons and groups even of the same town or city than in regard to our family and friends; it becomes still lower in regard to the other citizens of our state; and still less intense toward people as remote as the Chinese and Tasmanians. . . .

Our interaction with these distant peoples is at best only indirect and discontinuous; our interdependence is remote and often intangible. We are not taught as persistently, as early, and as deeply the norms of love for them; we are taught to be indifferent and even inimical to them. Our norms and other values are predominantly divergent, in a considerable part discordant with theirs; we rarely practice the norms of the Golden Rule in regard to them or they in regard to us. . . . The more a given person or group is a "stranger" to us, the more discrepant are his norms from ours, the weaker is our sympathy to such persons and groups. (10)

While Sorokin does not specifically mention large corporations one can see how the basic principle he has enunciated might apply. What would be regarded as an act of stealing from a private individual may not be considered wrong when a corporation is involved, because of the factor of social distance.

The problem is further complicated because, not only do we have the difficulty of working out values in an impersonal setting, but we also have the problem of coping with a tremendous shift in the basis of values. Over a period of the last 100 years some fundamental changes have been taking place in our thinking about how values are derived. Where formerly it was believed that moral values were logically independent of empirical factors, we now have considerable support for the position that ethical norms are culturally derived. The first position would state that moral laws are not derived out of experience, and that neither do they vary with experience or with situations. As Kant puts it, God and the soul and matters of morality are not verifiable within experience but belong to "the things-in-themselves." (6) Furthermore, these moral laws were absolute, universal, and frequently had the sanction of supernatural authority.

While the position that moral values are relative is not new philosophically, it received tremendous impetus during the latter half of the 19th century, partly as a result of the teachings and writings of Marx. In him we find an adherent of the second position that moral values are socially conditioned. Marx maintained that man produces certain principles or ideas in conformity with his social existence, and that the most important factor in determining these ideas is the social relations man enters into as a result of his means of earning a living. Consequently, values will vary from group to group according to a group's relationship to the means of production. Proletarian and bourgeois will differ in their moral principles because they differ in their relationship to the means of production. Furthermore, since these relations are transitory, the principles or values growing out of them are also transitory. They will vary in different historical periods and with different groups of people; there are no absolute, eternal values. (8)

From anthropological studies in the latter part of the 19th century, and continuing to the present time, has come an overwhelming body of evidence to support the theory that moral values are

not absolute but are socially conditioned. To learn that such practices as the killing of children, human sacrifice, abandoning of the aged to starvation, homosexuality, masturbation, lying and stealing, may be accepted mores in certain primitive tribes is shattering to the notion that truth is fixed, eternal and universal.

Not only do mores differ from society to society, but changes within the economic structure of a tribe can bring about changes in the value-systems of tribal members. This has been clearly demonstrated in the case of the Tanala, a primitive tribe living on the Island of Madagascar. For generations the tribe carried on a practice of communal farming, with the land owned by all, and with all members of the tribe in positions of relative equality to one another. The introduction of the technique of wet rice cultivation brought shattering changes in this primitive culture. The simple democracy of the people disappeared and in its place a class society of landowners, landless and slaves appeared. Marriage institutions, political institutions and even methods of war-making were radically altered, and values once held important in the tribe were supplanted by new and markedly different ones. (7)

But evidence from anthropological studies might not have carried such weight if it had not been for the fact that supernaturally conceived notions of good and evil had been losing ground during this same time. It might have been argued, "Because primitive tribes kill babies, or because values change with economic conditions in primitive societies the claim that our values are fixed and eternal is not necessarily invalidated. It might prove that ideas of right and wrong are not instinctive and not universal, but [the argument would go] it doesn't prove that they are relative because, after all, primitive people are God-less people who have not received the Word. In more civilized societies ideas of right and wrong are fixed and eternal because they are revealed by God." This argument, however, was not as powerful as it might once have been. The work of Darwin in proving the evolution of man from primitive forms had raised doubts regarding the Biblical story of creation and, correspondingly, doubts as to the supernatural origin of moral values. Increasingly we find people accepting the notion of the social conditioning of ethical norms.

Acceptance of the relativism of moral values has not settled the problems of mankind. Indeed, it may have seriously aggravated

them. For relativism has given rise to the position that, if our values are culturally derived and if there are no fixed and eternal truths, then whatever the majority of people is doing is the right thing to do. In other words, the basis of moral values would be by majority vote. If Kinsey says most upper-class males carry on such-and-such sexual practices, then that makes these practices morally acceptable. Perhaps a good deal of the conformity which sociologists tell us is stressed in modern society is due to the fact that modern man, having no absolutes, feels compelled to make an absolute of being like his fellow men.

Another grave consequence of relativism has been that modern man has tended to become extremely cynical. If moral principles are culturally derived, and if they have their basis in experience, then ideas and interest are interrelated. Since groups vary in their experiences, the crystallizations of those experiences in the form of values will differ. Therefore, man does not help his fellow man out of love for him, but simply because it is to his interest to do so. There are no nobler motives; man is prompted to act because his action will be rewarded. "He did that because he's just trying to get in good with someone," would be a popular expression of this cynicism.

The dilemma of modern man toward the problem of moral values is well illustrated in his relationship to property. Whereas in agrarian society it was fairly easy to apply the commandment "Thou shalt not steal," in industrial society the solution is not so simple. This is apparent in the study done by Jones in "Life, Liberty and Property." (4) He was interested in studying the relationship between certain attitudes and opinions and the "position in life" of the persons involved. Because corporate property plays such an important part in modern life, he chose to investigate attitudes toward it with the expectation that if there were differences in attitudes among social groups, these differences would be found here. Seventeen hundred adult residents of Akron were interviewed; they were told stories which described a struggle in which one side was working to protect the interests of corporate property and the other side the interests of an individual. Results showed some interesting differences between social groups in their attitudes toward corporate property as compared with private. An industrial magnate, for example, differs from a C.I.O. member in his attitude toward the use

of tear-gas bombs in a sit-down strike. Industrial executives and business leaders hold an attitude closely corresponding to their economic position. The workers, and C.I.O. workers particularly, also hold attitudes corresponding to their economic position but not as clearly defined as the business leaders. The middle groups show a greater tendency toward divergence in their attitude toward corporate property.

Interestingly enough, the influence upon moral development of conditions growing out of an industrial society has received little attention in research with children. In Vernon Jones' discussion of character development (5), he analyzes the influence of intelligence, chronological age, sex, accidents and brain diseases, volitional factors, the home, associates, day schools, reading materials on children, and summarizes the research findings on these factors, but in the research he reports there is no attempt made to view moral development in a total cultural setting. Problems of lying and cheating and stealing are discussed as if there were absolutes in terms of which one might make decisions.

The classic work of Hartshorne and May (3) also fails to take into account the cultural nature of honesty and dishonesty. As a result of their extensive studies they came to the conclusion that there is no generalized trait of honesty, but that it is highly specific. A given child may refrain from cheating under certain circumstances, but cheat under others. Similarly, he may steal on one occasion but refrain from stealing under others. The tests, however, were not constructed to test whether there might be a generalized factor operating in connection with honesty—the factor of who owns the property, an individual, the public, or a corporation.

In addition to the Jones study already discussed, there are two pieces of research on attitudes toward property where attention was given to the factor of who owns the property. One of these was a study by Waites (11) on the attitudes of adults toward property in a Lancashire, England, urban area. Choosing a group of 250 adults of both sexes, ages 21-70, who worked in the mills of a certain area, he explored three attitudes toward personal and public property: lending, damaging, and stealing. The adults were asked to arrange in order of seriousness various items under each category and to give reasons for their decisions. The order was found to depend on the amount of ego-involvement in the situation. Public property was

put low on the lists, particularly when there was a contrast between "we" and "ours" and "they" and "theirs." There was a local pattern of choice, which indicated that results from other sections of the country might not coincide with these. He concludes: "If this be so, then the acquisition of property is a habit complex by which we select objects that satisfy our fundamental needs. The factor determining which objects we select for possession and which are rejected depends upon the culture pattern, modified by individual differences, in which we have been reared. Being, therefore, children of the culture, attitudes toward property will change with the culture."

The second study of stealing involving who owned the property was made by Eberhart (2). He tested 100 boys, grades 1-12, and supplemented the tests by interviews with boys above the 5th grade. He was interested in finding out what changes take place in boys' ranking of the offenses in successive grades. From the results, he drew generalizations to the effect that changes that do occur from grade to grade in the ranking of offenses are not haphazard but regular and perhaps predictable. From the fifth grade on, the changes were very slight, indicating that whatever concept of property rights is responsible for these judgments is relatively stable by that time. Eberhart attempted to group the items into four categories of ownership: property in the home, lost property, property having many owners, and property owned by one person. However, he found that the offenses in each category did not behave alike so no generalizations could be drawn.

In this study, guided by the hypothesis that the majority of adults operate on a principle differentiating private from corporate property and that this is due to the factor of social distance, the following questions were raised:

1. To what extent do children differentiate, verbally at least, between stealing from a corporation and stealing from a private individual?

2. What are the reasons children give for excusing some acts of stealing and condemning others?

3. Of the various rationalizations children give for stealing, which are most frequently employed?

4. What do children reveal concerning the relative or absolute nature of their moral judgments in the test situations presented?

PROCEDURES

Preliminary interviews were held in order to locate the types of situations in which junior high school students might find themselves, and which would involve stealing property individually owned and property owned by a corporation. As a result of these interviews, five pairs of stories were composed; one story in each pair involved stealing private property, the other involved stealing corporate property. For each pair, a rationalization for the theft was presented. Thus, in the first pair of stories, the need of the individual who was stealing was given as an excuse; in the second pair, the thief knew he could get away with it; in the third pair, the prosperity of the owner whose property was stolen was stressed; in the fourth pair, the negligible worth of the article was mentioned; in the fifth pair, the fact that everyone was doing it was emphasized. Following each pair of stories, students were asked to tell which boy or girl in the stories did the worse thing, and why. The stories were presented as a written test to a total of 184 junior high school students, eighth and ninth graders in a midwestern community, drawn mainly from the lower and middle classes. One hundred and two of these were boys, 82 were girls. Students were told not to write their names on the papers, and the directions accompanying the test were read orally. Papers were collected in such a way that identification was possible. These were the stories:

I

Mary's father had been out of work for some time and there had been no money to buy lunches at school. One day she helped herself to a dime on a neighbor's desk at school. She remembered how much she needed money and thought it would be OK.

Jim's father was very poor and he had no money for school supplies. One day when he was in the Western Union Telegraph Co. where he worked after school, he saw the cash box out on the desk and helped himself to ten cents. He figured he needed it so much it was all right.

Who did the worse thing, Jim or Mary?

Why do you think so?

II

Harry was the last one getting dressed after gym one day and noticed a pair of tennis shoes hanging out of one of the lockers. There was no one around and so he helped himself to them. He knew most tennis shoes looked alike and that he could get away with them.

Donald worked after school for a large corporation where rubber goods were made. One night when it was quitting time he slipped a pair of rubbers inside his jacket. He knew he would be safe in doing this for no one had seen him.

Who did the worse thing, Donald or Harry?

Why do you think so?

III

Michael worked in a tool and die factory which was a large corporation. In the evenings he worked at home at his work bench. He needed a wrench for his tool kit, and at the factory one day he took a wrench to use at home. He thought that the corporation was prospering and allowed for a certain amount of loss anyway.

Bill was fixing a wagon and he needed a screw driver to work on the wheel. He remembered seeing one on Mr. Walker's lawn. Mr. Walker was the wealthiest man in town, and Bill thought he could easily buy another one. So he took the screw driver from Mr. Walker's lawn.

Who did the worse thing, Bill or Michael?

Why do you think so?

IV

Harriet's neighbor had some boxes piled high with scraps of cloth outside her porch. Harriet needed some cloth to make doll's clothes and so she helped herself. She knew the scraps weren't worth much.

Mary lived near a large factory that manufactured cotton goods. She wanted to make some doll clothes so she took some pieces of material from boxes piled outside the factory. She thought it was all right because they weren't worth much.

Who did the worse thing, Mary or Harriet?

Why do you think so?

V

William worked for a large lumber corporation on Saturdays. There were pieces of lumber piled up in the yard to which the workers often helped themselves. William took some lumber home with him. He thought it was all right because everyone else did it.

Some boys and girls always stopped by the corner grocery store owned by Mrs. Moore in the afternoons to buy candy or soft drinks. They would sometimes pick up things that didn't amount to much as they walked out. Sarah saw that everybody else did it so she took something too.

Who did the worse thing, Sarah or William?

Why do you think so?

RESULTS

Results will be discussed in relation to the questions raised which this study attempted to answer.

1. To what extent do children differentiate, verbally at least, between stealing from a corporation and stealing from a private individual?

Analysis of the data collected on the tests showed that 52 per cent of the students thought stealing property individually owned was worse than stealing from a corporation. Thirty-six per cent thought stealing from a corporation was worse, while 12 per cent indicated that both offenses were the same.

There was little difference between boys and girls with respect to difference in attitudes toward stealing property individually owned and stealing corporate property. Fifty-four per cent of the boys, as compared with 50 per cent of the girls thought stealing private property was worse; 35 per cent of the boys and 39 per cent of the girls indicated that stealing corporate property was worse, while 11 per cent of both sexes thought there was no difference between the two kinds of offenses.

While answers to the question of which was worse in a pair of stories indicated that a majority of students considered stealing property individually owned to be worse than stealing corporate property, a study of answers to the individual stories revealed some interesting data as can be seen in Table I. In two of the five pairs of stories, attitude toward personal property was in striking contrast to attitude toward corporate property. These were pairs II and V. Pair II, it will be recalled, involved stealing tennis shoes and a pair of rubbers; 71 per cent of the students thought stealing the tennis shoes from a fellow classmate to be the worse offense while only 29

per cent considered stealing a pair of rubbers from a large corporation to be the worse. In Pair V, involving stealing unnamed articles of negligible value from a store owned by an individual and stealing scrap lumber from a lumber corporation, 83 per cent thought the first offense the worse while only 17 per cent mentioned stealing the scrap lumber as the worse. Yet in Pair IV, there was only a four per cent difference between the attitude expressed toward private property and corporate. Further comment on these differences will be reserved for a later section of this report.

TABLE I

PERCENTAGE OF RESPONSES OF 184 EIGHTH- AND NINTH-GRADERS FOR EACH OF FIVE PAIRS OF STORIES INVOLVING STEALING FROM A PRIVATE INDIVIDUAL AND FROM A CORPORATION

| 1P * | 1C ** | 2P | 2C | 3P | 3C | 4P | 4C | 5P | 5C |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| 44% | 56% | 71% | 29% | 42% | 50% | 52% | 48% | 83% | 17% |

* P — Personal

** C — Corporate

In two of the five pairs of stories, stealing corporate property was considered worse than stealing property privately owned. In Pair I, 44 per cent of the children considered stealing a dime from a classmate to be the worse offense, while 56 per cent of the children considered stealing from Western Union to be worse. In Pair III, 42 per cent of the students said that stealing a tool from an individual was the worse offense while 58 per cent considered stealing from a corporation was worse. Here, again, comment on these differences will be reserved for a later section of this report.

2. What are the reasons children give for excusing some acts of stealing and condemning others?

3. Of the various rationalizations children give for stealing, which are most frequently employed?

4. What do children reveal concerning the relative or absolute nature of their moral judgments in the test situations presented?

It will be recalled that after each pair of stories on the test children were asked the why of their decision as to which of the two offenses was the worse. It was hoped that not only might this shed light on some of the reasoning behind children's choices, but also reveal something of the nature of their moral development. There-

fore, analysis was made to see whether the majority of judgments expressed was amoral in character, or whether it showed an absolute or a relative position with regard to what was right and wrong.

The reasons which students gave for their choices were categorized. Two workers independently classified the responses of the children under the categories presented, and an agreement of 90 per cent was found. The categories will be discussed in the order of the frequency with which they were mentioned. Results by category are shown in Table II.

TABLE II

PERCENTAGES OF REASONS ACCORDING TO CATEGORY WHICH 184 EIGHTH- AND NINTH-GRADERS GIVE TO EXPLAIN JUDGMENTS ABOUT STEALING FROM A PRIVATE INDIVIDUAL AND FROM A CORPORATION

| | <i>Reasons</i> | <i>Percentage</i> |
|---------------|-------------------------------------|-------------------|
| Category | I Need of the owner | 32 |
| | II Personal vs. corporate | 18 |
| | III Theft not necessary | 13 |
| | IV Possible punishment | 12 |
| | V Habit-forming | 7 |
| | VI Relative worth of the articles | 5 |
| | VII Danger of being caught | 4 |
| | VIII Carelessness of personal owner | 3 |
| Miscellaneous | | 5 |

Category I—Need of the Owner

The largest percentage of responses, 32 per cent, fell under the category of need of the owner. This category included responses such as:

The neighbor needs the scraps for a quilt.
 The lady needs the stuff to make a living.
 He might need the tool to fix something.
 The company needs the lumber for their business.

Of the responses in this particular category, the personal property owner was felt to have the greater need. Where need was mentioned as the rationalization for stealing, 76 per cent of the responses favored the personal property owner. There were some

interesting answers favoring the company, however. Where the company was named as needing the object it was usually because the theft interfered with the manufacturing process. For this reason, stealing tools or raw materials was very bad, much worse than stealing finished goods, because it might interfere with the production of goods and might even throw a man out of work because he wouldn't have the proper tool with which to do his job. This was true in Pair III where more responses favored the corporate owner because taking a tool interfered with production, and Pair IV where almost as large a number of responses favored corporate as compared with private ownership because the scraps of cloth left outside the factory were probably needed by the company in manufacturing cotton goods.

Category II—Personal vs. Corporate

The second largest percentage of reasons—18 per cent—included reasons which contrasted personal ownership with corporate ownership, in almost every instance to the benefit of the personal owner. Excuses for condoning stealing from a corporation were usually expressed in such terms as these:

The corporation makes allowances for stealing; a person doesn't.

The company had plenty; Mr. Jones had only one tool.

A company can always get more; a person might not.

Stealing from a company isn't stealing from anyone.

Stealing from a friend is worse than stealing from a company.

He's working for the company so he has a right to take it.

Category III—Theft Not Necessary

This very interesting category accounted for 13 per cent of the reasons students gave for excusing theft. It was applied in 58 per cent of the cases to stealing from private property. Implied in the explanations was the idea that it is always possible in our culture to get what one wants by legitimate means. One could work for it, or wait until one's father had a job, or ask the owner for it, or buy what was needed, or decide the particular object wasn't necessary.

Category IV—Possible Punishment

The fear of more severe punishment was given in 12 per cent of all cases for stealing from corporate property and in 42 per cent of the cases for choosing one kind of theft as against another. In most all cases, punishment by a corporation was more to be feared than punishment by an individual. A corporation could "fire you," "make you do time," "send you up for a stretch," "fine you or your parents hundreds of dollars," or so the students said. Where a well-known and powerful company was specifically named, as was Western Union in the first pair of stories, fear of punishment seemed to be stronger. To be feared in the case of stealing from an individual was one's reputation; one would be punished by losing face with one's group.

Category V—Habit-Forming

Seven per cent of the responses condemned a particular kind of stealing as being habit-forming. Stealing personal property was considered to be more habit-forming than stealing corporate property, in the majority of cases where habit-forming was mentioned. This was particularly true in the case of stealing tennis shoes left outside the locker, and in stealing things from a small grocery store.

*Category VI—Relative Worth of the Articles**Category VII—Danger of Being Caught**Category VIII—Carelessness of Personal Owner*

In these three categories, percentages of total responses were small. Five per cent mentioned relative worth of the articles; four per cent were concerned about being caught in the act; three per cent expressed a rather cynical attitude that if the owner were careless enough to leave personal property hanging around, he deserved the loss.

CONCLUSIONS

An attempt will be made to pull together some of the findings with regard to junior high school students' attitudes toward stealing

private property as compared with stealing corporate property.

1. The generalized factor of who owns property—corporate vs. private—would appear to influence children's judgments about stealing a particular item.

2. Where children condone stealing corporate property rather than private, two factors are in evidence. One is that many children of junior high school age have a strong fear of large corporations; they believe that corporations do more checking on supplies, and that they punish theft more severely. Where a corporation was specifically named—as in the case of Western Union—the prestige and accompanying fear of this company was a powerful deterrent to stealing. The other factor is that a theft which supposedly interferes with production, as in the case of a tool, is considered to be more serious than stealing manufactured goods.

3. Children give a variety of reasons for condemning one kind of theft and condoning another. The reason most frequently given had to do with regard for the owner, either for his need for the article stolen or for his feelings. This need or these feelings were most frequently attributed to a private owner rather than to a corporate owner. This reason represented an application of the Golden Rule and in that respect might be considered to be of a high moral nature.

4. A small percentage of students of junior high school age (12 per cent) maintain an absolute standard with regard to stealing. For these students stealing is stealing; it is never right under any circumstances to take property belonging to another. Their strict consciences make them reject relativism in the field of morals.

5. Another group of students might be considered to be amoral with regard to attitude toward property. These are the students who indicate an underdevelopment of conscience in that they would refrain from stealing only if there were a possibility of their being caught and punished; that it is all right to steal if the owner of the property is careless enough to leave it lying around; that stealing articles that are not considered to be of much value is not really stealing. Twenty-four per cent of the reasons given by children might be classified amoral in this way.

6. The remainder of the students reveal the relative nature of their moral judgments by their responses to the socio-moral judgment test. More than 66 per cent of the reasons were of this nature.

SUMMARY

A test of judgment about stealing corporate property as compared with private property was given to 184 eighth and ninth graders. The test consisted of five pairs of stories describing acts of stealing, and children were asked to state in each case which was the worse offense. Results showed that children consider stealing private property more serious than stealing corporate property except where reprisal by a strong, powerful company was feared, or where the theft slowed up production. According to the classification used by the writer, almost a quarter of the reasons children give for stealing are amoral; more than a tenth of the children have very strict consciences with regard to stealing, and approximately two-thirds are relativists in their moral judgments.

Certain implications as well as reservations regarding this research should be pointed out. First of all, it should be clearly recognized that children's judgments regarding stealing are not an indication of what their actions in a particular situation might be. No claim is made here that children's responses to the test stories predict what children will do. Indeed, there is a likelihood that the reasoning of some students, "If you work for a company it's OK to take things from it" might make for more acts of stealing as these same students go to work in industry.

A second reservation has to do with the fact that over half of the students involved in this study were lower-class children. Further investigation involving more upper-class students and analyzing the results from a class viewpoint needs to be done. It may be that lower-class children present different reasons for judging an act of stealing than middles and uppers because lowers have greater reason to fear powerful companies and to fear losing a job. Uppers may present more traditionally moral reasons in giving their judgments about stealing.

What this study implies for the teaching of moral values is not quite clear. Certainly it would appear that home, church and school need to recognize the distinction being made by some children between private and corporate property. Yet in the interviews with students, this writer had the feeling that those who responded to the test items in absolute terms—"Stealing is stealing under all circum-

stances"—did not have the final answer. This again is in the nature of speculation, but reports by those who knew the "absolutists" were agreed that these were the students who in other aspects of their lives revealed rather rigid personalities. A return to an acceptance of fixed and eternal truth under modern conditions of living is neither feasible nor practical. In the writer's opinion, research on what are the conditions under which modern man can be moral is sorely needed.

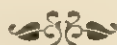
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ARTHUR E. TRAXLER

Emerging Trends in Guidance

The organized guidance program is now virtually a standard part of the curriculum in larger school systems. Since its development has been relatively recent and unusually rapid, one may appropriately inquire about the present trends in its organization and techniques. Dr. Arthur E. Traxler, one of the most prominent of the guidance leaders, is especially competent to attempt such an inquiry. In this article he describes the trends in guidance programs as he sees them.



If I had reviewed the observable trends in this area four or five years ago, I would have been obliged to take note of more backward steps than forward progress. For, during the war, guidance did move backward in several ways, but during the period since the war there have been positive and hopeful signs of progress. Some of the trends are just beginning to emerge. It would be incorrect to say that they are nation-wide or that they affect a large number of schools, but there can be little doubt that they are present in a considerable number of forward-looking schools.

I. THE FIRST TREND IS ONE TOWARD MORE ADEQUATE TRAINING OF GUIDANCE PERSONNEL. It is now rather generally accepted that many of the functions of guidance are highly specialized and that guidance directors and counselors should have a broad background

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of training in psychology and mental hygiene, and preferably practical experience in a psychological clinic, as well as work experience in one or more of the common vocations. In various states, a minimum number of hours of graduate credit in psychology and in counseling is now a prerequisite to certification for a guidance position in a school. The tendency of the states to examine and define the qualifications of counselors has been stimulated by the George-Barden Act, which authorizes the use of federal funds to reimburse states for vocational-guidance activities.

2. THE SECOND TREND IS TOWARD MAKING GUIDANCE AN ALL-FACULTY FUNCTION AND TOWARD CO-OPERATION BETWEEN GUIDANCE SPECIALISTS AND CLASSROOM TEACHERS. There is a rapidly growing tendency to recognize that a successful guidance program must have the active and enthusiastic co-operation of the teaching staff. Usually the first job of the director of a newly instituted guidance program is to lay the foundation for an in-service training program for the teachers.

The guidance department and the instructional staff need to work together in closest harmony. Teachers inevitably carry on incidental functions of guidance in their day-to-day activities, and one of the tasks of the guidance director is to help them do this job better. The teachers can, in turn, greatly assist the work of guidance specialists through contributions to the individual records and through bringing to the attention of the guidance department the pupils with problems that require individual attention. Thus, at the same time that guidance is calling for more highly trained specialists, it is extending its boundaries to train and to use in its work a host of nonspecialists.

3. THE THIRD TREND IS TOWARD CLOSER CO-OPERATION OF THE GUIDANCE SERVICES OF THE SCHOOL WITH THE HOME AND OTHER AGENCIES IN THE COMMUNITY. Co-operation with the home can be implemented by means of improved report forms, which are guidance-oriented in that they provide the parents with understandable information concerning the growth of the pupils, and by means of a system of mutual reporting and exchange of information between the school and the home.

There is a growing tendency for school guidance functionaries to co-operate with health and social-service agencies in the community and to draw upon the resources of expert psychiatric, psycho-

logical, remedial, and clinical services for the treatment of badly maladjusted individuals. In fact, in many schools there are no experts of these kinds on the school staff, and the only opportunity the guidance department has for the assistance of specialists in the building of mental health is to use community agencies.

4. THE FOURTH TREND IS TOWARD THE ORDERLY ACCUMULATION AND RECORDING OF A VARIETY OF INFORMATION CONCERNING EACH INDIVIDUAL. Early in the development of guidance work in the schools, it became apparent that the conventional permanent records did not provide enough information or a sufficient variety of information to serve as a dependable basis for guidance. The first tendency was to try to supplement the traditional records of subjects, marks, and credits with loose sheets of information filed in large individual folders. These folders were frequently built up until they contained useful guidance data, but, as a rule, the material was unwieldy and poorly organized. A form on which a variety of information could be entered periodically and which would present a picture of the growth of the individual from year to year was greatly needed. The cumulative record, which first made its appearance in schools about 1928, was developed to fill this need. Comprehensive cumulative records are now published by several organizations, including the American Council on Education, the National Association of Secondary-School Principals, and the Educational Records Bureau, and many thousands of these forms are distributed annually for use in guidance programs.

Cumulative records of the type that are published and made generally available can provide schools with many useful suggestions, but it seems preferable for schools to devise their own systems of cumulative records to take account of local objectives and programs. Encouraging evidence of vitality and leadership in guidance programs is found in the number of new cumulative-record forms prepared by individual school systems during the last few years. In addition to the values inherent in improved records, one of the best ways for a guidance department to establish a close working relationship with the instructional staff is to launch a project in the development of a new cumulative record and related forms. Before the project is finished, it will, if it is broadly conceived and carried out, touch upon, and lead to thoughtful reconsideration of, every aspect of the school's program.

Some of the newer cumulative-record forms set up for local use in different school systems do not present a clear picture of the growth of the individual pupil because they are not well organized. Any school planning to publish its own cumulative-record forms could profit from a study of the organization of the American Council on Education Cumulative Record Folders.

On the other hand, many of the cumulative records recently issued by local school systems seem excellent so far as the kinds of information included are concerned. The majority of them contain information on the individual's home and family, his school history, his general scholastic aptitude, his specific aptitudes, his achievement in the common fields of study, his health history, his out-of-school experiences, his interests and attitudes, his personal qualities, and his educational and vocational plans. There is a tendency to give increased space to personal qualities and to objective data relative to ability, achievement, and interests.

5. THE FIFTH TREND IS TOWARD INCREASED USE OF OBJECTIVE MEASURES IN GUIDANCE PROGRAMS. This trend merges with the one just discussed and is one of the most definite of the recent trends in guidance. The exact volume of objective testing in the schools of the United States at the present time is not known, but it is unquestionably large. It has been estimated that in 1944 more than twenty-six million tests were administered by educational institutions, business firms, and personnel consultants to over eleven million individuals (12). The use of tests in military service during the war familiarized numerous persons with objective measurement and gave impetus to the use of tests throughout the United States. This emphasis on objective appraisal as applied to the schools is evidenced by the growth of nonprofit test-making and test-service organizations, such as the Educational Testing Service and the Educational Records Bureau.

Much of the testing in the earlier stages of guidance was carried on at irregular intervals, was based upon instruments whose results were not comparable, and was lacking in long-term planning and organization designed to reveal growth patterns of individual students. In recent years, schools have gradually developed programs that have placed testing on an organized basis. Many schools have been able to co-ordinate the testing programs of the elementary and secondary schools, so that the kinds of objective information most

serviceable in guidance are slowly but systematically accumulated for each individual over a twelve-year period.

6. THE SIXTH TREND IS TOWARD DIFFERENTIAL PREDICTION OF SUCCESS ON THE BASIS OF TEST BATTERIES THAT YIELD COMPARABLE SCORES IN BROAD AREAS. Schools are showing a realization of the fact that a test which yields simply one score showing the general level of the individual in a field, such as general intelligence, reading ability, or knowledge of English, has limited usefulness for prediction and guidance. On the other hand, it is apparent that it is not practicable to try to measure specifically for prediction of success in all the thousands of occupations that might be considered by a person. Measurement instruments are not available for such a variety of occupations, and, even if they were available, there would not be time for any individual to take more than a small number of the tests for purposes of counseling.

In line with this trend, and interacting with it, several test batteries that have great potential usefulness in guidance have been developed, and some of these are of recent origin. In the field of mental ability, four test batteries measuring aptitude in broad areas are: the Chicago Tests of Primary Mental Abilities, for ages eleven to seventeen,¹ the Yale Educational Aptitude Tests,² the Differential Aptitude Tests,³ and the SRA Primary Mental Ability Test.⁴

The Chicago Tests of Primary Mental Abilities are based on factorial analysis studies by L. L. Thurstone and Thelma G. Thurstone. They include a single booklet edition, which requires about two hours of working-time and yields scores for six areas, and an edition in separate booklets which is less highly speeded.

The Yale Educational Aptitude Tests, prepared by A. B. Crawford and Paul S. Burnham, are used in Grades X, XI, and XII, and with college Freshmen. This battery contains seven tests, each of which requires forty-five minutes of working-time. The battery is primarily a series of power tests at a high-ability level.

The Differential Aptitude Tests consist of seven booklets and provide eight scores intended to be useful in educational and voca-

¹ Published by Science Research Associates, Chicago, Illinois.

² Published by Department of Personnel Study, Yale University, New Haven, Connecticut, and distributed by Educational Records Bureau, New York, New York.

³ Published by Psychological Corporation, New York, New York.

⁴ Published by Science Research Associates, Chicago, Illinois.

tional guidance. The average working-time per test is about twenty-five or thirty minutes. The battery is intended for junior and senior high school pupils.

The SRA Primary Mental Abilities Tests, like the Chicago Tests of Primary Mental Abilities, were prepared by the Thurstones. These tests have a wider age range than the Chicago, Yale, and Differential Aptitude batteries. They consist of three overlapping batteries covering ages five to seven, seven to eleven, and eleven to seventeen. Each of the first two batteries is designed for administration within an hour, and the third is planned for a class period of forty-five minutes. Thus, speed is a much more important element in the scores on these tests than it is in the results of tests such as the Yale and Differential Aptitude batteries.

In the field of achievement the attention of school-guidance departments is turning toward tests that are diagnostic in broad areas. For example, in the measurement of reading ability there is active interest in the extensive series of tests known as the Diagnostic Reading Tests,⁵ which are planned for use in Grades VII through XII and with college Freshmen.

For the measurement of interests, broad-area tests have been available for ten years or more, and the use of this type of inventory has grown rapidly. This kind of measurement is exemplified especially by the group scales on the Strong Vocational Interest Blank for Men⁶ and by the Kuder Preference Record—Vocational.⁷ The latter inventory is available in both a nine-scale and a ten-scale edition.

In a considerable number of guidance departments, it is now standard practice to administer an interest inventory to all pupils and to follow up with tests of special abilities of individual pupils as needs are indicated by the results of the interest inventory.

There is now great need for comprehensive and sustained studies of the value of all these newer differential measures for the prediction of educational success and especially for the prediction of vocational success and adjustment.

7. THE SEVENTH TREND IS TOWARD INCREASED INTEREST IN THE USE OF IMPROVED TECHNIQUES IN THE APPRAISAL OF PERSONAL QUAL-

⁵ Published by Committee on Diagnostic Reading Tests (Frances Triggs, chairman), 419 West 119th Street, New York 27, New York.

⁶ Published by Stanford University Press, Stanford University, California.

⁷ Published by Science Research Associates, Chicago, Illinois.

ITIES OF PUPILS AND THE TREATMENT OF MALADJUSTMENT. This interest is not confined to guidance personnel but extends to the administrative and instructional staffs as well. Recently, when the Committee on Personality Study of the Educational Records Bureau sent to Bureau member schools a questionnaire on practices in the appraisal and development of pupil personality, there was a surprisingly favorable response. Even schools that regard their primary function rather narrowly as the provision of instruction and learning skills and the content of academic subjects are coming to realize that instructional problems do not stand in isolation but interact with the personal problems of the students. The administrative and teaching personnel of many schools, as they learn to view their students as individuals, are becoming increasingly aware of the fact that there are problems in the development of individuals which cannot be met with the procedures to which they have been accustomed, and they are looking for help from persons with special training. It is in this area that the possibilities of integrating the work of the guidance department with that of the school as a whole seem especially favorable.

As noted earlier, a clearly defined characteristic of newer cumulative-record cards, as compared with those prepared some years ago, is the provision of more space for a record of personal development. The techniques for collecting data on which to base this record are not at present clearly defined. Many schools are taking a questioning and experimental attitude toward the various types of appraisals that may be employed. In the past, perhaps the largest number of schools has employed some comparatively simple, locally devised plan for rating personal qualities, but there is a good deal of dissatisfaction with this procedure because it has often turned out to be low in validity. Some schools are successfully employing anecdotal records and behavior descriptions, while other schools feel that these procedures are too elaborate and time-consuming for their situation. Considerable experimentation is being carried on with the use of autobiographies and sociometric devices in personality appraisal, but much more research is needed in this area. A comparatively few schools that have well-trained clinical psychologists are basing their studies of individual pupils to a large extent upon projective techniques, such as the Rorschach⁸ and the Thematic Apperception Test.⁹ Although these instruments are often

⁸ Published by Psychological Corporation, New York, New York.

useful when employed by experts in their administration and interpretation, they are usable by the guidance departments of only a small proportion of schools as presently staffed.

As previously stated, numerous paper-and-pencil inventories of personality, or personal-activity preference blanks, are available for school use. Schools have advisedly been slow to adopt these instruments, for the validity of all of them may be questioned. Even if their validity were established, the results should be used only by persons who have had considerable training in psychology. It is believed that, at present, probably none of these inventories should be a part of the regular systematic testing program for all pupils. However, a few of these blanks may perhaps be used occasionally to advantage with individuals to supplement the information available from other sources. Among the more promising blanks of this kind that have been available for some years are the Bernreuter Personality Inventory,¹⁰ the Bell Adjustment Inventory,¹¹ and the California Test of Personality.¹² The newer blanks for the appraisal of personal qualities include the Minnesota Multiphasic Personality Inventory,¹³ the Kuder Preference Record—Personal,¹⁴ the Runner-Seaver Personality Analysis,¹⁵ and the Heston Personality Adjustment Inventory.¹⁶ Schools should be encouraged to experiment with these devices under conditions in which the best possible rapport has been established and to report their findings.

8. THE EIGHTH TENDENCY IS TOWARD A MIDDLE POSITION BETWEEN DIRECTIVE AND NONDIRECTIVE GUIDANCE. The earlier tendency in counseling was highly directive. The usual counseling situation is one in which the counselor can easily play a dominant role. In fact, the attitude of the counselee frequently tends to force this kind of role upon the counselor. When a guidance program is introduced into a school, the pupils in the beginning are likely to be under the impression that their counselor is the person who should be able to straighten out their problems and give them direct, specific advice.

⁹ Published by Psychological Corporation, New York, New York.

¹⁰ Published by Stanford University Press, Stanford University, California.

¹¹ Published by Stanford University Press, Stanford University, California.

¹² Published by California Test Bureau, Los Angeles, California.

¹³ Published by Psychological Corporation, New York, New York.

¹⁴ Published by Science Research Associates, Chicago, Illinois.

¹⁵ Distributed by Center for Psychological Services, New York, New York.

¹⁶ Published by World Book Company, Yonkers-on-Hudson, New York.

The counselor, in turn, is likely to obtain satisfaction from the sense of power which the dependent attitude of the counselee brings to him, and he may, on occasion, try to maintain his integrity with the counselee by giving advice when he is out of his depth.

It would be incorrect, however, to imply that directive procedures in guidance have simply developed in a haphazard manner as a result of the pressures of counseling situations and of the natural tendency of adults to assume a dominant role when dealing with young people. As conceived on a scientific basis, the techniques of directive guidance have been stated by various leaders in the field, including especially Paterson, Williamson, Darley, Hahn, and others of the University of Minnesota school of thought. The procedures are essentially research techniques applied to the study of individuals, although one may short-cut these procedures in actual practice. They involve identification of symptoms, formulation of a tentative hypothesis, collection of data including history and measurement, diagnosis, plan of treatment, application of treatment, evaluation of progress of treatment, and follow-up.

When using directive procedures, the well-trained, experienced counselor provides for the co-operation of the counselee in working out the solution of the problem, but there can be little doubt that many inexperienced counselors are prone to try to give ready-made solutions to counselees.

The rise of nondirective therapy, as conceived and practiced by Carl R. Rogers and his associates, has had a liberalizing influence on counseling. The essence of nondirective technique is to create a positive, permissive atmosphere in which the counselee will be stimulated to resolve his own difficulties and reach his own decisions with a minimum of influence from the counselor. In its most pronounced form, this technique not only relegates the counselor to a secondary role but also virtually prohibits the use of the familiar paraphernalia of directive counseling, such as tests and individual inventories, unless these are requested by the counselee.

While recognizing the merits of nondirective procedures for some individuals in some situations, most of the guidance workers in the schools have refused to adopt nondirective counseling as a basic technique to be used with all, or even the majority, of students. They have reasoned that few junior and senior high school pupils, boys and girls in their teens, have the backgrounds neces-

sary for the successful application of nondirective therapy. So the present tendency of school counselors is to encourage counselees to take the lead to the limit of their ability but to recognize that the counselor, because of his greater maturity and superior training, has a responsibility to make suggestions, provide guidance, and even to assume direction when the counselee is beyond his depth.

9. THE NINTH TREND IS TOWARD RECOGNITION OF RELATIONSHIP BETWEEN REMEDIAL WORK AND GUIDANCE. These two kinds of educational activities had different origins and lines of development. Guidance grew out of the recognition of the needs of young people for better educational and vocational adjustment. It developed on a broad front enlisting in one way or another the co-operation of the many kinds of specialized and nonspecialized personnel. Remedial work originated in general observation and measurement showing that some pupils were greatly retarded in fundamental skills and that these pupils had much difficulty in mastering the content fields until the handicaps of the tool subjects were removed. In its earlier stages, remedial work was far narrower in scope than guidance and much more directly oriented to the classroom. To a considerable extent, this difference in scope and orientation still exists and will continue. As our knowledge of the psychology of learning and of adjustment has grown, however, it has become increasingly evident that there is frequently close interaction between learning difficulty and personal maladjustment. The basic cause of a difficulty may be found in either area and may, in a few years, build up into a complex pattern which is difficult to unravel. There is now a considerable amount of research literature indicating the relationships between learning difficulty and personality adjustment (1, 5, 6, 10, 13).

As the interrelationships between learning disability and emotional maladjustment have become more clearly recognized, the desirability of close co-operation between remedial specialists and guidance specialists has been underlined. The remedial worker can, through special help for retarded pupils, either prevent them from developing emotional maladjustments or alleviate emotional conditions that have already developed. The guidance worker can help to identify pupils who need remedial attention and can take steps to relieve the emotional maladjustments of other pupils that might soon lead to serious learning difficulties. Not only is close co-opera-

tion between these staff members needed, but it is also advisable for remedial specialists to have guidance training and for counselors to have at least one course in remedial techniques as part of their training for personnel work.

10. THE TENTH TREND IS TOWARD THE USE OF IMPROVED CASE-STUDY TECHNIQUES, BOTH FOR PURPOSES OF BETTER UNDERSTANDING OF INDIVIDUAL PUPILS AND FOR IN-SERVICE TRAINING OF TEACHERS. This is not at present a pronounced trend. Many so-called "case studies" reported in educational journals are simply sentimental stories or informal reports intended as propaganda for a particular educational method. In recent years, however, various articles have been published which either describe or illustrate an objective, scientific approach to the study of individuals.

There is need for greater development of this slight trend, particularly in the training of counselors on the job. Although case-study procedures grew out of directive counseling, they can be planned and carried out to take advantage of the best theory and practice in both directive and nondirective therapy.

11. THE ELEVENTH TREND IN GUIDANCE IS TOWARD THE AVAILABILITY AND USE OF BETTER SOURCES OF OCCUPATIONAL INFORMATION. The *Dictionary of Occupational Titles* (3) is now a standard tool for all counselors. The *Encyclopedia of Vocational Guidance* (8), published in 1948, is also an important reference work for vocational counselors. Books, such as Forrester's *Methods of Vocational Guidance* (4), present general information concerning the occupational world, factual material relative to specific occupations, and lists of source material on occupations and make helpful suggestions for the organization and use of the materials in this field. Publications which supply annotations of current articles on vocations and industrial training, such as the *Occupational Index* (9) and the *Industrial Training Abstracts* (7), and brochures containing brief accounts of important occupations, such as the *Occupational Monographs*,¹⁷ help to keep busy counselors up to date in this ever changing field. The Office of Education has recently published a helpful summary of procedures and references in this area (2).

12. THE TWELFTH TREND IN GUIDANCE PROGRAMS IS TOWARD THE USE OF FOLLOW-UP STUDIES. This trend, like the one toward improved case-study techniques, has developed little momentum as

17 Published by Science Research Associates, Chicago, Illinois.

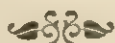
yet, but it is discernible in some places. For example, in a recent survey of follow-up procedures and forms used by certain public schools in the state of New Jersey, eighteen of thirty-one schools replying stated that they had some type of plan for following up school leavers (11). Several of these schools indicated that they were not satisfied with existing procedures and expressed definite interest in improving their follow-up programs. It appears that schools are realizing that this area has lagged behind other aspects of the guidance program, and many of them apparently feel that appraisal, not only of the guidance program but of the entire contribution of the school to their students, calls for co-operation of graduates and other school leaders.

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Chapter Eight

ASSESSMENT OF PUPIL STATUS AND PROGRESS



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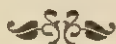
Ruth L. Munroe

FRANK S. FREEMAN

How the Curriculum Is Evaluated and Modified Through Educational Measurement

The necessity of using educational objectives as criteria in the evaluation of educational achievement tests is frequently acknowledged—and ignored. The teacher who is not aware of tests that are available to him or who does not have the skills necessary to construct appropriate ones runs the risk of permitting the tests he uses to determine his educational objectives. Even more unfortunate is the teacher who is not aware that this has happened.

How adequate are the currently used achievement tests? What should the teacher know about them? Some of the articles reproduced in this chapter are addressed to such questions. Professor Frank S. Freeman offers a brief introduction. As its style suggests, this article was a preliminary report to a professional committee on which its author served.



Current tests of educational achievement are designed to measure skill, or information, or understanding in a specified school subject, or group of subjects.

Everyone here knows that most tests of educational achievement are devoted to measuring the amount of information recalled,

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or skills and techniques acquired (as in reading and arithmetic). These devices are educationally useful, but to a very limited degree. And I believe they are very inadequate for the evaluation of the most significant educational objectives.

Tests placing emphasis upon problem-solving, drawing inferences from subject-matter (that is, inductive thinking), application and generalizations to specific situations (deductive thinking), and attitudes and appreciations developed through the study of course materials—these types of tests are very few in number, although they have been receiving increased attention. As educational tests they are superior to those mentioned a moment ago. Yet they too have serious deficiencies as pedagogical devices.

We are all familiar with the types of items included in most achievement tests; namely, simple recall, two-alternatives (such as true-false), multiple-choice, completion, matching, analogies, and check lists. Pupils and students taking these tests, excepting the completion items, have only to distinguish the correct from the incorrect, and then make a mark. Such activity makes few demands upon psychological processes other than 'recognition.' Experiments on memory have shown that tests of recognition are the easiest type; they yield the highest scores; they demand less cerebration than tests of anticipation, recall, and organization. Completion tests are somewhat superior, in terms of mental activity; for they, at least, require that the student supply the answer himself, even though within a rather rigid framework.

A few tests—relatively few—are intended to measure performance and educational results on a higher, more complex level: these are the tests of evaluation, interpretation, critical thinking. One of these instruments¹ is designed to measure competence in the following: (1) obtaining facts, (2) drawing conclusions, (3) applying general facts. But here again, all necessary information is provided; the possible conclusions, inferences, and the like are all presented. It is the students' task, again, only to evaluate and select what is given.

Other tests in this category are more involved, extensive, and ambitious.² But essentially they suffer from the same deficiency as the one mentioned above.

¹ Wrightstone, *Test of Critical Thinking in the Social Studies*.

² P.E.A. *Eight Year Study*.

In general, I believe that standardized tests have been used to excess; and, if that is the case, they have had an unhealthy influence upon curriculum content, methods of teaching, and objectives of instruction. We talk and write a great deal about the aims of education in a democracy; but if we may judge from the very widespread use of standardized achievement tests, educational practices hardly coincide with the stated objectives.

Many of the tests—some circulated by reputable publishers—are poor devices even from the standpoint of accepted technical standardization procedures alone; not to speak of their consonance, or lack of consonance, with stated educational aims. But even most of the well standardized tests are of very limited educational significance, because they fail to evaluate what should be the most vital aims of education. The mere acquisition of facts which are soon forgotten—I need hardly say—is not the main purpose of an education. Modern aims emphasize such objectives as the development of concepts and attitudes, critical thinking, analysis and synthesis of materials, creativity, originality, and problem-solving.

Unfortunately, however, standardized objective tests are, by their very nature, seriously limited in the extent to which they can test the attainment of these and similar aims. They are limited because they are standardized and rigid; and because they do not require the learner's own original, spontaneous and creative effort. Critical thinking and other complex mental processes are reduced to a minimum. The best of the tests examine ability to discriminate arguments and to evaluate assumptions. While they are distinctly superior to the simple measurement of information, their limitations must be recognized.

It appears to me that our problem should not be: "How the curriculum is evaluated and modified through educational measurement": for that suggests the tests are primary objectives rather than mere tools. I should rather state the problem in this way: How tests should be evaluated and modified on the basis of educational aims.

This Committee is concerned with one aspect of the professional education of teachers; namely, in the fields of child development and educational psychology. For preparation of teachers in the subject of educational measurement, the implications, I believe, are these:

Educators must know the assumptions upon which tests are constructed.

They must understand the process of standardization; especially norms, reliability, and validity; and more especially the fact that achievement test validity is largely a matter of 'face validity' and subjective judgment.

They must have a clear conception of what the tests actually measure; and, fully as important, a conception of their limitations.

They must evaluate tests in terms of their adequacy and their relationships to educational objectives and values.

More emphasis should be placed upon the current types of tests examining the more complex processes. But new tests should be developed such as case-study types, situational tests, or products to be evaluated by the learner.

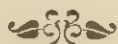
More emphasis should be placed upon methods of constructing valid essay examinations.

I am sure none of the views I have stated will be news to anyone here. But I have emphasized them because if we are to judge from the number and range of standardized tests being used, it seems that the character of available tests may well be determining content and methods of teaching, rather than the reverse. The relationship must be changed if education is to attain or approximate its stated aims.

VERNER M. SIMS

Questioning Some Assumptions Underlying Current Achievement Testing

The teacher who commits himself to the use of any educational measurement technique is also committed to the assumptions that underlie it. Furthermore, there is no exception to the observation that all tests involve assumptions—either explicit or implicit. When the teacher is aware of the assumptions he is accepting, he can assess the educational consequences. Often, however, he tends to be insensitive to the extent of his commitment in using a specific test. It is the latter situation that has given rise to Professor Verner M. Sims's remarks. The article presents five assumptions that appear to be implicit in the measurement of educational achievement, as it is practiced. Professor Sims feels that these assumptions are unfortunate, and he indicates their educational consequences.



The value of any measurement of educational achievement must be judged ultimately in terms of the extent to which the measurement reveals information leading to a more intelligent prediction or control of the behavior of students. Commonly, however, we neither apply this criterion directly to our instruments nor to our measuring activity. Instead, in the testing which we do, we either consciously or unconsciously accept a chain of assumptions which stem from and presumably may be justified, either logically or experimentally, as supporting this ultimate purpose. The soundness

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of our measurement and its usefulness to education is, therefore, contingent on the validity of a set of assumptions which are implicit in our testing. It is the purpose of this paper to make explicit and to critically examine certain of the assumptions which seem to underlie current measurement of achievement.

1. Current measurement of achievement assumes that the value of a learning experience is indicated by increased ability (skill or knowledge) to cope with some situation or class of situations.

Achievement testing as presently practiced appears to be confined to the testing of ability. Standardized tests of achievement, whether subject tests or general tests, survey or diagnostic, whether tests of knowledge, skills, or understanding, or tests of ability to apply principles and interpret data, are all concerned with measuring what children *can* do. Teachers in their own testing and marking are concerned with measuring the same outcomes. If the teacher does attempt measurement of anything other than ability it is usually made clear to the pupils that "this test does not count." For teachers to permit anything other than achievement (interpreted as increased knowledge or ability) to influence their marks is commonly considered questionable practice.

The obvious conclusion to be drawn from an examination of current achievement testing is that the end of education is to increase the abilities of pupils. Most of our educational theorists would not be willing, however, to accept any such conclusion. They would say, rather, that the end sought in teaching is changed behavior on the part of the learner; which is, of course, not the same thing as having the ability to do differently. Whether one *will* act so and so depends not only on whether he *can* do so but also on a complex of attitudinal-emotional-motivational factors which are generally neglected. Furthermore, it seems reasonable to assume that whether the learner will use his learning or not is a factor of the setting in which it is acquired. Not only the learner's own purposes and methods but those of his teacher will condition the kind and amount of use made of the learning.¹

If the fundamental question in achievement testing is whether, in terms of the evidence at hand, one can predict that the learner

¹ The writer has developed this point at considerable length in an earlier article "Educational Measurements and Evaluation," *Journal of Educational Research*, September, 1944, pp. 18-24.

will act differently in a certain class of situations, it would seem desirable that our testing comprehend more than the measurement of *ability*. Recognition of this assumption and acceptance of its limiting influence would, in the writer's opinion, lead to a re-vamping of many of our present approaches, to the designing of new instruments, and to a re-interpretation of many of our test findings. Tests might be designed, for example, to measure whether a child *would*, as well as *could*, read, reason or act in certain types of situations. Measures of the effectiveness of the use made of learnings might be developed. In time we might be able to describe (even quantitatively) the conditions under which learnings would or would not function.

2. Current measurement of achievement assumes that the value of a learning experience is indicated by growth in those directions toward which the learning (or teaching) activities are specifically pointed.

It seems fairly obvious that this assumption does underlie our testing. Typically, we test the value of drill in spelling by measuring the increase in ability to spell, the value of instruction in health by measuring the increase in knowledge and understandings relating to matters of healthful living, the value of a method of science instruction by measuring the increased ability to apply scientific principles, etc. We measure the child's growth and mark him on the achievement of the specific objectives which are set up for the course.

Superficially the soundness of this procedure would seem almost axiomatic; but the thoughtful reader will recognize immediately that it is justified only when many other things are accepted as "being equal," and without evidence to support this, one cannot always assume that such is the truth. If the increased ability to spell comes as a result of sacrifice in the ability to read, if it is accompanied by the acquisition of unfavorable attitudes toward spelling or toward school, if it furnishes an escape from real problems about which the children could and should be doing something directly, or if it merely results in pupils becoming increasingly better in a skill in which they are already good, one would certainly question the value of the learning experience. Yet evidence relating to such matters is commonly not made available. Such information is usually not even considered the concern of the tester.

If the "whole child" is involved in any learning experience, then inferences concerning the value of learning which ignore this fact are of questionable validity. Testing theory which neglects the fact forces the trained user to interpret his test results in conjunction with a large amount of "common sense," subjective and informal data, and encourages the untrained user to arrive at conclusions that are unsound.

3. Current measurement of achievement assumes that the value of a learning experience may be inferred from measures of the outcomes evident at some particular moment after learning, typically at the conclusion of a learning experience.

The test-teach-test formula describes the accepted procedure for evaluating the outcomes of learning. In practical classroom situations and in educational experimentation we test the value of method and the growth of children in such terms. Progress is assumed to be measured by noting the difference between initial and terminal test scores. Furthermore, in cases where there has been no previous formal training the first testing is commonly dispensed with, and the terminal test score becomes the measure of learning.

We do this although we know that learning is a form of growth the path of which is best expressed by a curve. If this is true, predicting later performance is a matter of projecting this curve into the future. We attempt to do this extrapolation by locating one point (in the case of terminal testing only) or at the best two points (in the case of initial-terminal testing) on the curve. Mathematically, this is not possible. With one point we can tell nothing about the curve, with two points the curve would need to be a smooth one the slope of which were known. These are conditions which are not met in practical teaching-testing situations, unless in the doubtful case where the concern is entirely with group averages. Certainly no individual's curve of learning is a "smooth one the slope of which is known." This implies that dependable predictions can be made only when we locate further points on the curve of growth.

Some educators will point out, however, that there is a correlation between such measures of progress and later performance. The fact is, the nature of these correlations is one of the reasons which cause the writer to question the soundness of this assumption. The size of the coefficients usually found between terminal tests and later achievement suggests that we may be dealing with little more

than "the correlation between desirable traits." Reading age, at ten years, for example, is no more closely correlated with reading ability at 15 years than is general intelligence. In the writer's institution at least, terminal achievement on a standardized test of high-school algebra is not as closely correlated with success in college algebra as is general quantitative ability as measured by the *ACE Psychological Examination*. One is led to suspect that the only real justification for assuming that initial-terminal testing measures the value of a learning experience is found in the convenience and simplicity of the procedures which the assumption makes possible.

4. Current measurement of achievement assumes that the only sound interpretation of measures of achievement is through comparison with norms of some sort.

Educational measurement, as it has developed, is a "normative" science; that is, it attempts to develop norms of performance for groups of known (and described) status from which one may by comparison interpret measures of other groups or individuals. Standardized achievement testing is universally of this nature. Raw scores are to be interpreted in terms of age or grade norms, T-scores, scaled scores, or percentiles. The writer knows of no standardized achievement test which does not use this method of interpreting scores. In fact, the word "standardized" has come to refer not only to a standard testing procedure but to a test with "standards." Furthermore, very few tests propose any other method of interpretation. In teacher testing, too, the emphasis, as the testing experts would have it certainly, is in the same direction. In all text books concerned with the problem of marking with which the writer is familiar, teachers are encouraged to make relative interpretations, to "mark on the curve," to define an A as superior performance in the group; some even go so far as to recommend that promotion and non-promotion be determined on the basis of position in some group. Any teacher who proceeds otherwise today is apt to be labeled either old-fashioned or too "progressive."

The writer is not questioning the value of the interpretation of test scores in terms of norms. In the hands of a trained teacher, standard scores may serve many useful purposes. (The fact that they are too often misused, being accepted as goals of achievement, for instance, is also irrelevant to our purpose here.) Relative position in a class, as expressed by the kind of marks which specialists

in measurement advocate, also has its uses. That which is being questioned is the assumption that the *only* valid interpretation of measures of achievement is through comparison with norms. For many school objectives and for many situations facing teachers, the writer contends that there are other perfectly valid interpretations possible and desirable. There are two cases in particular which seem worthy of comment.

First, in the case of some learnings, worthwhile interpretations may be made by comparing a child's performance with the demands of life (present or future). For example, we assume that a child needs to know how to add, and to know automatically, all the digit combinations. The fact that Johnny has mastered 50 per cent of these combinations, or 60 per cent, or 90 per cent, is valuable information for the teacher who is working with Johnny without regard to where he stands with reference to other children. In fact, the job which lies ahead for Johnny is just the same whether he is at the top, in the middle, or at the bottom of some group. Or, let us consider writing or spelling. Johnny must write legibly (we assume), and whether his writing is legible, or not, can be determined without comparing him with other children. If we assume that the child should be able to spell the 1,000 most common words, or the 100 "spelling demons," then knowing that he can spell certain of these words has great meaning to Johnny and to his teacher, even though he is the only pupil she has ever had in class or even known. If there is anything wrong with this idea it is in the assumption concerning what he should know, not in the interpretation of the measurement.

Our whole system of prerequisites falls into the same category. If certain learnings are really needed to succeed in later work then tests which show whether the student has mastered these learnings have meaning which is independent of the performance of others. The same is true of learning in multitudinous fields. Particularly in the fields of attitudes and habits of action could illustrations be multiplied. The fact that a child throws rocks at Negro children every time he gets a chance, the regularity with which he brushes his teeth, or the extent to which he eats a balanced diet, all have meaning which is not determined by a normative score.

Secondly, many measurements may have meaning when interpreted in terms of the student's own educational-psychological

make-up. Illustrated simply, the child who succeeds in mastering the mechanics of arithmetic but who cannot solve problems involving the same processes can be located without any normative interpretations. The student whose factual learning is entirely acceptable to the teacher but whose attitudes toward the same problems are not; the student whose emotional blockings prevent him from using his ability to reason sensibly on problems relating to labor unions; the student whose motivations are all in the direction of pleasing the teacher; these can all be identified without the use of norms, whether class norms or large group ones. The fact that the teacher's own experiences with students are involved in the judgments which she makes concerning the goodness or badness of such characteristics is aside from the point. Exactly the same value judgments are involved in the interpretation of tests which are provided with norms.

Insisting that measures of achievement have meaning only through comparison with norms must result in limiting the usefulness of educational measurements.

5. Current measurement of achievement assumes either that "appropriate" measurement is independent of one's theory of learning and of education, that current measurement concepts fit all current theories of learning and of education, or that there is only one acceptable theory of learning and of education.

When achievement testing techniques were first subjected to careful study, some three decades ago, the prevailing theory of learning was a narrow, "connectionist" one, expressed by Thorndike's stimulus-response formula, and the commonly accepted theory of education was that education is preparation for living. It is perhaps no accident, therefore, that our testing procedures so aptly fit these theories of learning and of education. In the meantime, however, in many quarters at least, other theories of learning and of education have come to be accepted, while our testing techniques remain relatively unchanged. (The only major change in achievement testing procedures that has taken place during the past two decades which the writer is able to identify is represented by Tyler's approach. Most of our testing seems to fit the theory that education is an accumulation of large numbers of relatively independent knowledges and skills, while Tyler's testing would seem to identify it as an accumulation of a large number of abilities to apply prin-

ciples, interpret data, and reason logically, all of which are still relatively independent. It is not difficult to see in Tyler's work the influence of Judd's theory of "transfer through generalization" rather than Thorndike's "transfer of identical elements," but otherwise it fits perfectly an atomistic conception of learning as preparation.)

So far as the writer can find, no one working in the field of achievement testing has seriously considered the implications of insightful learning, or of organismic or "field" psychology for achievement testing procedures. Nor does anyone seem to have considered the possibility that other theories of education, such as the theory that education is a form of intelligent living which within itself constitutes an end, may demand different approaches to the matter of testing.

If one rejects the theory that learning consists of the acquisition of a large number of more or less simple and independent abilities, then one can justify present means of testing the outcomes of instruction only by assuming that the number of such abilities acquired is indicative of total learning. When the fundamental nature of the differences among the several theories of learning and of education is considered it seems rather naive to accept such an assumption without any evidence to support it—even without trying to get evidence to support it. Can we assume, for example, that a child who showed no progress on a current standardized reading test during his first three years in school, and then, in his fourth year, without any special help, jumped from a reading age of seven years to almost eleven years, actually learned nothing about reading during the first three years? ² How could one who denies that psychologically the whole is equal to the sum of the parts be expected to take to current tests of arithmetic, of social studies, of science? As long as we operate as though the end of education is the accumulation of a set of skills and knowledges which will be useful later, can we blame the "progressives" (who accept a quite different theory of education) if they reject our instruments in their entirety?

It does not seem unfair to say that the measurements experts have very subtly, although perhaps unconsciously, thrown their support to a particular theory of learning and of education. Would

² Reported by Willard C. Olson, "When Should My Child Learn to Read?" *University of Michigan School of Education Bulletin*, XIX (1947), 9.

not an eclectic approach contribute to a greater serviceableness from the discipline? With our present lack of effort, can we presume to say that educational measurements have no contribution to make to those who hold to differing philosophies of education or belong to differing schools of psychology?

In summary, the attempt has been made in this paper to point out several assumptions which seem to be implicit in present-day measurement of achievement. The assumptions identified are those of which the writer is critical. In general, the basis of the criticism is the fact that through operating on the assumptions we restrict the usefulness of educational measurements. Whether or not the assumptions are defensible may, of course, be debated. If they do underlie our measurements, however, there can surely be no question concerning the worth of making them explicit, and the desirability of consciously recognizing them as assumptions. It may even be that simply accepting the assumptions for what they are would, in itself, result in some rather fundamental changes in our measuring activity and in the techniques of measurement finally developed.

VERNER M. SIMS

Objective Tests and Teachers' Measurements

In 1920, William A. McCall, in an article entitled "A New Kind of School Examination," advocated that teachers construct and use objective tests instead of the then-current essay examinations. Within a comparatively short period, the objective-testing movement was in full swing and soon reached such proportions that those who continued to use essay-type evaluation procedures ran the risk of being called "old-fashioned." Although the pendulum of educational measurement appears to be moving back to a more moderate position, the tendency to be completely "objective" in assessing student status and progress is still with us. Professor Verner M. Sims wrote this article almost a quarter of a century ago, when there were many champions and few critics of the "objective" trend. Since the conditions which prompted the article still exist to a considerable degree, Sims's remarks have current relevance as well as historical interest.



New-type, objective tests, developed in connection with group intelligence tests and quickly applied to standardized measures of achievement, were very naturally carried over by the teacher to the measurement of the results of her instruction. The modern teacher knows more about making objective tests than did the "measurement's expert" of a few years ago, and the use of an essay examination is commonly taken as an indication of ignorance, laziness or antiquity. Like most movements in education our enthusiasm for

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the new precluded any serious attempts at rational evaluation, and to-day many teachers, supervisors, administrators and educational writers contend that all the teacher's testing should be of this sort. It does seem high time that we attempt a critical appraisal of these tests. Aside from any general criticism of the "objective" testing technique in other realms of human measurement, there seem to be conditions peculiar to the use of these tests as classroom tests that make the wisdom of their exclusive use appear very doubtful.

Typically, this method of examining places the individual in a large number of relatively narrow, rather simple and more or less isolated situations, assuming that the number of such situations adequately met is a measure of ability. For the teacher this means using true-false, completion, multiple-choice, etc., types rather than the traditional essay examination; and further it means testing on facts, single qualities, elementary relationships, in general what the psychologist would call "limited perceptions." Whether or not this is what it should mean to the teacher is more or less aside from the issue. Suffice it to say that not only in the hands of the teacher but also in the hands of experts (in our standardized tests) they are of this narrow nature. In fact, such authorities as Ruch, Russell and Odell point to this as the peculiar advantage of the new testing.

The theory supporting the use of such tests is that an extensive sampling of narrow items gives better measurement than an intensive sampling, where a few relatively complex situations are presented. At first glance the theory is very attractive, especially to the "measurement-conscious" teacher. Certainly it will give more reliable measurement than the intensive sampling; not only because the units are of necessity finer, but also, since the number of complex situations that can be presented must be limited, it is less sensitive to accidental inequalities in learning due to such things as absence, illness or temporary inattention. For the same reasons, other things being equal, it would presumably give more valid measurement. But, are other things equal in the case of the classroom tests?

To justify the use of objective tests for measuring the outcomes of instruction one must assume either (1) that the learning consists of a large number of more or less simple and independent habits or (2) that the number of such habits formed is indicative of total learning in the given field. In other words, when one tests knowl-

edge by measuring ability to react to a large number of narrow items the assumption is either that knowledge is made up of the number of such items known or that knowledge is indicated by the number known.

Now, in certain school subjects (or at least in parts of certain subjects) the first assumption is, for all practical purposes, true. For example, in spelling, in number combinations, in vocabulary, the learning is essentially a matter of acquiring a large number of simple habits. In such subjects the extensive sampling would undoubtedly give reliable and valid measurement. Here good measurement would simply consist in making a random sampling long enough to be reliable.

In other subjects, in most subjects, the learning is not alone a matter of acquiring many isolated modes of response. It is primarily a matter of organizing and relating these responses into patterns. In such subjects learning is best conceived as a hierarchy of habits, the elementary facts being the lower order habits and the combinations, relations, organizations, integrations being the higher order habits. In these subjects the first assumption (that learning consists of simple and independent habits) would not be valid; consequently, one could justify interpreting the score on an objective test as a measure of knowledge only on the basis of the second assumption, that it indicates knowledge. And it is this supposition that I question, particularly in the case of the teacher's own tests.

In the realm of intelligence testing, and in general achievement testing, the empirical evidence does seem to justify such assumption, for there is certainly a close relationship between scores on these tests and other measures of the ability or abilities being measured. But, if it be true in these fields, it is true only when the ability being measured develops and exists independent of its measurement; and in the case of the teacher's measurements one cannot postulate any such independent development or existence. To illustrate, if a child had been previously drilled on the answers to the items in an intelligence test one would hesitate to contend that performance on the test was indicative of general ability. Yet this is practically what happens in the case of the teacher's tests. The implication is not that she drills the class upon the items in the tests (although there is probably more of this than one would suppose) but that she unconsciously emphasizes the lower order habits to the

exclusion of all others. The teacher who is to test for facts known will naturally come to lay stress upon facts. One could not imagine a teacher, testing month after month, year after year, on narrow, simple items, who did not eventually come to think of the acquisition of such habits as being the ends of instruction. This seems to be a very natural condition that one could avoid only by divorcing the testing from the teaching, which in this case is impossible, since the same person carries on both jobs.

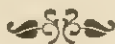
If it is natural for the teacher to teach what she is going to test, it is just as natural for the student to study what he is going to be tested on. Our second assumption would be invalid, not only because the teacher is influenced by what she is to test on but also because the student is in like manner influenced. If we could assume that the student acquires knowledge, regardless of the method of testing, then to sample the lower order habits might give satisfactory measurement, but it is too far-fetched to imagine that the student will attempt to master the subject without any regard to approaching periods of reckoning. Among other things, he studies for the examination, and what he studies as well as the methods used will be determined in some measure by the type of test expected. Terry (in a study as yet unpublished) has investigated the methods of study used in preparing for different types of examinations, and he found that less than 4 per cent of some 250 students used the same methods in studying for the two types, essay and objective. What is more significant, he found that the average student in preparing for an objective test concentrated on details, on what he calls "small units," while in preparing for an essay examination attention was given mainly to "large units."

The ideal testing program would necessitate first a setting up of the objectives of instruction and then the development of instruments that would measure these ends; but, so long as we have such vague conceptions of what we are trying to teach, this intimate relation between teaching and testing and between studying and testing would suggest that for many subjects the use of objective tests to the exclusion of the essay will actually pervert the ends of instruction. In my opinion, the most satisfactory testing procedure for most school subjects would involve the supplementing of objective tests with essay questions definitely designed to measure these higher order habits of relationship and organization.

W. ALLISON DAVIS AND
ROBERT J. HAVIGHURST

The Measurement of Mental Systems

Few developments in psychology have had as much influence on educational practices and policies as that exerted by intelligence tests and their implicit definitions of intelligence. A current controversy in this area arises from recent data indicating that the measured intelligence of children may be more closely related to their cultural experiences than to their "real" abilities. This suggests, to many, that the tests frequently used in the schools have been biased in favor of the members of the dominant socioeconomic group, and that we need an intelligence test based on those experiences common to all children and including a wider range of mental activities. Recently, Allison Davis and Kenneth Eells have made available a test that purports to meet such requirements. This article, written by two of the most prominent advocates of the need for "culture-fair" tests of mental ability, presents the background and data out of which their conviction has emerged.



The crucial problem raised by the attempt to compare scientifically the capacity of any two individuals to learn is that of finding situations with which the two individuals have had equal experience. To state this issue more exactly, two major systems of behavior are involved in problem solving. They are (a) the individual's genetic equipment for problem solving; and (b) the indi-

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vidual's particular cultural experience, training, and motivation, which have developed certain areas of his mental behavior and certain skills more than others. In a test of general hereditary capacity, the second factor must be equalized for all those tested.

Consider two children with equal hereditary mental factors. The child who obtains more practice in working on mental problems of a certain type will prove superior in that particular area of mental functioning. If one of these equally endowed children is reared in a family of high socioeconomic status, and the other in a slum family, we should expect that the first child will prove superior on academic types of problems, such as nearly all those in "intelligence" tests. This actually proves to be the case, as Newman, Freeman, and Holzinger have shown with identical twins, separated early and reared in different socioeconomic strata.

But if one considers any two children, not genetically identical—and this is the chief task of mental tests—the fact that one child proves superior within a certain narrow range of academic problems does not imply that he is superior likewise in solving more realistic, lifelike problems. Mental processes are highly varied; so are the types of specific mental problems presented by our society. Thus problem-solving activities in man exist as a configuration of systems of activities. In one child, systems A and B may exist at a high level, but systems C and D may exist at a low level, as a result both of genetic factors and of training. A second child may have this pattern of strong and weak activities exactly reversed.

Any scientific effort to compare the mental status of individuals throughout the whole cultural range of the population of the United States, therefore, must satisfy two conditions. Unfortunately these requirements have not been met by the makers of intelligence tests or tests of "mental ability."

The two requirements for such a test may be stated thus:

Since, in life, human beings engage in an incredible variety of mental activities, the testmaker must discover those systems of acts that are most representative of all mental behaviors. In practical terms of testmaking, this requirement means that those types of problems that are put into tests must represent the wide range of mental systems exhibited by normal human beings (and not merely a sampling of their academic or linguistic activities).

In each mental-system area, the testmaker must select problems

common to the culture and practice of all socioeconomic groups in the population to be tested. In addition, the testmaker must learn how to express these problems in symbols common to all the socioeconomic groups to be tested. He must likewise find problems that motivate equally all the groups to be tested.

Although Alfred Binet, who founded modern tests of intelligence, was keenly aware of the danger that his test problems were too scholastic and too closely related to home training, he did not live to face the extremely complex task of creating new tests that would be less biased in these respects. During the past twenty-five years, therefore, many research psychologists have criticized all such intelligence tests as including a strong cultural handicap for pupils of the lower socioeconomic groups.

There has been little serious consideration given, however, to the first criterion mentioned above. In the thirty-five years since Binet's last work, virtually no new types of problems have been included in either the individual or group intelligence tests. The few recent additions have merely extended the old, abstract types of problems, which are dear to the heart of academicians, but seldom or never met by the individual as basic, real-life problems.

We regard mental behavior as the interaction of many systems of mental acts. The Spearman theory considers intelligence as composed of one general (or *G*) "ability" and several specific "abilities." We raise the question whether the testee will have a fair chance, however, to show how much of *G* he possesses unless he has had equal access, with all other testees, to the situations and symbols by which he is tested, and unless he is equally as much motivated as all other testees.

Thurstone's multifactor theory of intelligence supposes that there is a rather small number of independent primary abilities. The necessity for culturally common situations, symbols, and motivation would apply to Thurstone's tests of Primary Mental Abilities also.

Our chief criterion for a measure of general mental behavior is that the problems must represent a wide range of mental systems and mental problems. We do not believe that the present tests meet this criterion. Thurstone isolated his primary abilities by analysis of fifty-six "current psychological tests," constructed by many persons, but all limited, we believe, to a few systems of men-

tal behavior, and formulated in academic abstract problems. Thurstone quite frankly makes no claim that his tests cover a wide range of "mental factors" or problems. F. L. Goodenough has made the same point: "Thurstone's primary abilities are not presumed to cover the complete range of human talent—they involve only the abstract abilities needed for success in the conventional types of intelligence tests and in the academic pursuits of the classroom."

Very recently, Thurstone himself has stated that his "primary mental factors" may vary in their definition. Some may "be defined in endocrinological effects," others in effects of the central or autonomic nervous systems; "still others may be defined in terms of experience and schooling."

Authorities like Ralph W. Tyler, former director of Examinations Staff, U. S. Armed Forces Institute, and Otto Klineberg, of Columbia University, have long emphasized the defects in the present tests of general intelligence. Used widely as a basis for segregating, and discriminating educationally against the lower socio-economic groups, the tests have levied an irreparable toll upon a whole generation of children from these groups. Tyler has attributed the inadequacies of both the tests and public education to the same blind spot: an overacademic view of human learning. One of the foremost authorities on test construction, Tyler has said:

The public schools, as well as the standard intelligence tests, fail to tap many vital aspects of intelligence. Both the tests and the schools are caught in a circular kind of educational philosophy. They assume that only certain kinds of problem-solving activities are diagnostic of "intelligence." Then the schools, supported by the test results, conclude that only those pupils who rank high on this limited, highly specialized range of activities, are "intelligent." This is a narrow, ritualistic concept of mental behavior which causes our communities and our industries a tremendous loss, owing to the failure of the schools to uncover and to train many other kinds of mental activities in all our children. The true learning-potential of the millions of children in our lowest socio-economic groups is not yet known. The efforts of the schools to develop this potential are weak and inept.

The sociologist and social anthropologist have been convinced, through studies of a great many human societies, that cultural learning runs through nearly all the "mental" behavior of human beings.

Social anthropologists therefore strongly doubt that cultural behavior can be eliminated from any intelligence-test response.

We hope, however, that cultural bias in the tests, favoring any socioeconomic group, can be eliminated. This position requires the construction both of test problems and of total testing situations that so control all the major cultural elements in these tests that no cultural advantage is offered to any socioeconomic group in the United States.

Cultural Systems in the United States

Fortunately, sociologists and social anthropologists now have developed a typology of the cultural systems within the United States. We know that Americans exhibit three major types of cultural behavior. These are:

- a) The common American cultural traits and behaviors.
- b) The various cultural behaviors of the different socioeconomic (social-class) groups.
- c) The cultural patterns of the different "ethnic" or nationality groups.

The culture of the United States, in which the test problems inevitably must be expressed, is therefore composed of (a) common problems and behaviors and (b) limited, "subcultural" traits or problems. Here, then, in this discrimination between common cultural problems and more limited subculture-group problems, lies the way to improve our tests of general problem-solving activities. We must try to control or equalize the cultural factors in test problems if we hope to use these problems to measure comparative ability (that is, mental activity as developed in similar learning environments). One way to attack this problem would be to try to avoid all types of problems in which one socioeconomic group (and this means, in present test practice, the middle-class group) has had more training and experience than some other group. We might choose problem situations that are equally general in all our socioeconomic levels of pupils. Second, we might express these problems in symbols that are equally common, and in a manner that is equally motivating, to all socioeconomic groups.

Our position with regard to the present tests may be summarized in a series of four interdependent hypotheses:

1. All responses to all items in all tests of general intelligence are necessarily and inevitably influenced by the culture of the respondent.
2. In a test of general mental ability to be used in the United States, the problems should be selected from the common culture, expressed in cultural symbols common to all native inhabitants of the United States, and selected from that common culture only.
3. In all available tests of general intelligence, however, there are numerous items implying experience that is part of the culture of the higher socioeconomic groups, but not equally a part of the culture of the approximately 60 percent of all Americans who grow up in the lower socioeconomic groups.
4. Therefore, the basic cultural flaws in all available tests of general intelligence may be overcome by including only those problems and symbols that imply experience that is part of the general American culture.

*Cultural Influences in Intelligence Tests:
The University of Chicago Research*

Starting with these very general hypotheses, the senior author of this paper originated a large-scale research dealing with "Cultural Influences in Intelligence Tests." The research has been directed by the present authors, with substantial aid from Ralph W. Tyler, W. Lloyd Warner, Virgil E. Herrick, Ernest A. Haggard, Walter I. Murray, and Kenneth Eells. Work was begun in 1945 and will continue for several years. Stated briefly, the aims of this research are:

1. To measure the relative success attained by different socioeconomic groups of pupils on the specific questions ("items") in eight of the most widely used group tests of general intelligence. This part of the research enables us to identify those test questions that prove relatively easy or difficult for pupils of each socioeconomic stratum in the population. For this purpose, in a Midwestern city of about 115,000 people, all children of ages nine, ten, thirteen and fourteen were tested. To define the socioeconomic status of each pupil's family, we have used a quantitative index recently developed and validated by Warner and Eells. This Index of Status Characteristics correlates highly (over 0.8) with the social-class position of families in Midwestern cities.

The results of our item analysis, carried out by Eells, of eight

standard, paper-and-pencil group tests of intelligence will be published later in a monograph. For our purpose here, it is necessary only to report the following results: We discovered that a large proportion of the items in each of these tests "discriminated between" children from the highest and lowest socioeconomic levels. In several tests, the proportion on such items was overwhelming; for instance, in the very popular Otis Beta test, 73 of the 80 items on the test showed statistically highly significant differences between the performances of children from the two levels (Table 1).

TABLE 1
DISCRIMINATION BETWEEN SOCIOECONOMIC GROUPS

| TEST | NUMBER OF PUPILS | | PROPORTION OF |
|---|---------------------------|--------------------------|---|
| | High Socio-economic Group | Low Socio-economic Group | ITEMS SHOWING SOCIOECONOMIC DIFFERENTIAL (PERCENTAGE) |
| <i>Given to nine- and ten-year-old pupils:</i> | | | |
| Henmon-Nelson | 226 | 322 | 93 |
| Otis Alpha (nonverbal) | 223 | 316 | 46 |
| Otis Alpha (verbal) | 223 | 326 | 70 |
| Kuhlmann-Anderson (Grade III) | 225 | 327 | 56 |
| Kuhlmann-Anderson (Grade VI) | 225 | 321 | 85 |
| <i>Given to thirteen- and fourteen-year-old pupils:</i> | | | |
| Terman-McNemar | 233 | 361 | 100 |
| Otis Beta | 235 | 364 | 91 |
| California Mental Maturity | 235 | 352 | 69 |
| Thurstone Spatial | 235 | 352 | 84 |
| Thurstone Reasoning | 232 | 358 | 100 |

It will be seen that on only one of the tests did less than half the items show significant discrimination between the two socioeconomic groups, and that on four of the tests, more than 90 percent of the items showed such discrimination. Moreover, the proportion of items discriminating between socioeconomic groups is probably considerably higher in the Otis Alpha tests and in the Kuhlmann-Anderson (Grade III) than our sample reveals. These tests were standardized for grades (and therefore for age groups) that are lower than the mean grade placement and mean age of our sample of testees. We should expect, therefore, that many of the items would be too easy for our sample; such items would not

allow the higher socioeconomic group to demonstrate the superiority over the lower in this type of problem. The figures for the California Mental Maturity test are based on only four of the six subtests. Two of the subtests were omitted because the test was too long to give in full in the time available.

The figures indicate the proportion of items that showed a difference between the responses of the two socioeconomic groups large enough to be significant, but they do not show the actual amount of discrimination between the two groups. In order to study the actual amount of discrimination, the percentage of pupils in each socioeconomic group answering the item correctly was converted to an index based on the normal curve. The socioeconomic discrimination of the item was then computed in terms of this index (Table 2).

TABLE 2
AVERAGE AMOUNTS OF SOCIOECONOMIC DIFFERENCE

| <i>Test</i> | <i>Average Difference between Index for High Socioeconomic Pupils and That for Low Socioeconomic Pupils</i> |
|---|---|
| <i>Given to nine- and ten-year-old pupils:</i> | |
| Henmon-Nelson | 14.1 |
| Kuhlmann-Anderson | 10.3 |
| Otis Alpha (verbal) | 6.9 |
| Otis Alpha (nonverbal) | 5.9 |
| <i>Given to thirteen- and fourteen-year-old pupils:</i> | |
| Terman-McNemar | 16.4 |
| Thurstone Reasoning | 15.2 |
| Otis Beta | 14.1 |
| California Mental Maturity | 9.9 |
| Thurstone Spatial | 9.8 |

These figures show that the actual amount of difference between the two socioeconomic groups was much greater on certain tests than on others. In general, the tests for the older pupils showed larger differences, although the California Mental Maturity and the Thurstone Spatial tests indicated differences smaller than those found for the younger pupils by the Henmon-Nelson and Terman-

McNemar tests. Since there is such wide variation, for the same ages, in the amount of difference between the high and low socioeconomic groups, depending upon what test is used, it is apparent that at least part of the difference must be due to the nature of the material in the tests themselves.

By means of this same index, it is possible to describe any item as showing a "small," "medium," or "large" amount of difference between the high and low socioeconomic groups. Although the definitions of these terms are somewhat arbitrary, they will serve to illustrate the variation in kinds of items in the different tests.

Figure 1 shows the proportion of items with "small," "medium," or "large" differences found in the various tests. It will be seen at once that there is marked variation in the different tests. Nearly half the Henmon-Nelson items, for example, show differences between the socioeconomic groups that are classified as "large," whereas only 3 percent of the Otis Alpha nonverbal items show "large" differences. One-fifth of the items in the Henmon-Nelson show "small" differences, whereas more than four-fifths of the Otis Alpha nonverbal items show this relatively "small" difference. Among the tests for the older pupils, there are likewise marked differences from test to test. In both the Terman-McNemar and the Thurstone Reasoning tests, approximately two-thirds of the items show "large" differences, whereas only one-quarter of the California Mental Maturity items—and only 6 percent of the Thurstone Spatial items—show "large" differences.

This difference between the proportion of each group answering the questions correctly is what we refer to as a socioeconomic differential. It reflects the extent to which pupils from the high groups excel pupils from the low groups on each individual item. The wide variation in the amount of socioeconomic difference found may be illustrated by citing two individual items (see Fig. 2). In the first case, 74 percent of the pupils in the high socioeconomic group answered the item correctly, but only 28 percent of the pupils in the low group did so—a difference of 46 percentage points. In the second case, the percentage answering the item correctly was practically identical for both socioeconomic groups, so that there was no statistically significant difference. The content of these two items suggests the reason for the great variation in their socioeconomic differential. The first item requires the pupil to be familiar

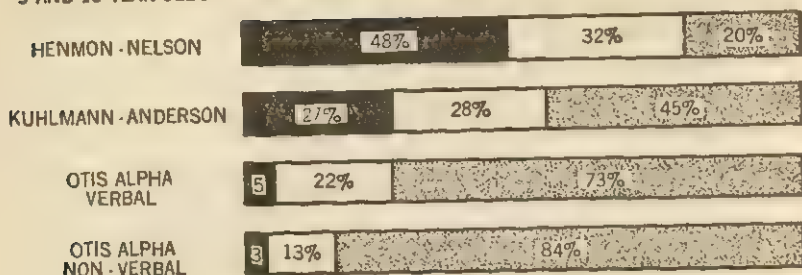
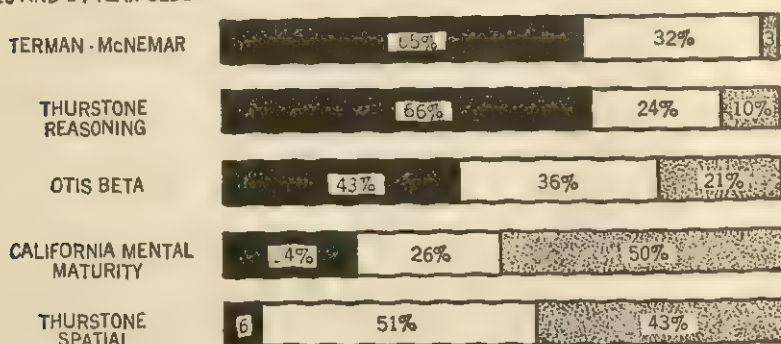
TESTS FOR
9 AND 10 YEAR OLDSTESTS FOR
13 AND 14 YEAR OLDS

FIGURE 1. Differences in response to various intelligence tests. The larger the black area, the greater the difference in response of children from high and low socioeconomic levels to the particular test. The definition of size of difference is arbitrary.

with the term "sonata"—clearly a word that will be more often heard in a home in the high socioeconomic brackets than in a family from the low socioeconomic group. The second item, on the contrary, requires the pupil to apply the concept of a "cutting tool"

so as to distinguish between this type and several other types of implements common to all socioeconomic groups.

The first major part of our research identified, therefore, those specific test questions that have proved relatively most difficult for pupils of the lowest socioeconomic group. In doing so, it demonstrated that the standards used for selecting items in present tests have resulted in a very high degree of discrimination between socioeconomic groups.

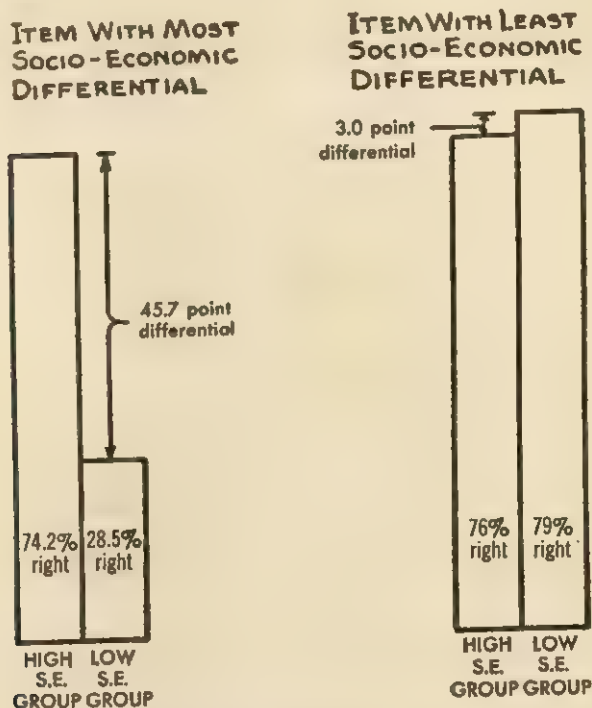


FIGURE 2. Sonata vs. cutting tool. The high-level group was familiar with "sonata," whereas the low was not. Both groups well understood the concept "cutting tool."

2. Furthermore, an analysis was made independently by Walter I. Murray and Kenneth Eells of the relative performance of the highest and lowest socioeconomic groups on different categories, or types, of problems in these tests. Murray and Eells did not agree in

their definitions of the types of problems, but each classified the problems upon the basis of the chief mental process that seemed to be involved in the questions, such as "classification of concepts," "recognition of opposites," "recognition of analogies," "syllogistic reasoning," etc. Both researchers found that there was no type of mental problem on these tests that did not show a significant differential in favor of the highest socioeconomic group.

We interpret this finding to mean that the present intelligence tests really measure a very narrow range of mental activities—the range of academic problems. This characteristic of the tests has been recognized by many other researchers. Indeed, the testmakers themselves have used a method of "validating" their selection of problems that insists upon high correlation with scholastic skills.

3. The crux of our problem, however, was to discover why the standard test items proved far more difficult for pupils of the lowest socioeconomic group. To answer this question, we have conducted a large-scale experiment with pupils of ages nine to ten, to measure the relative importance of various cultural influences as between the high and low socioeconomic groups. This central experiment, designed to test the basic hypotheses underlying all the various parts of our research, will be described later.

At the biochemical level, the total mental system of a human being must be presumed to be an organization primarily of activities of the brain, the central nervous system, and certain of the endocrine glands, extending only secondarily to the autonomic nervous system. Of this biochemical level, where mental behavior originates, we know very little.

At the level of gross, or molar, behavior, however, where observation of learning sequences and records of "conscious" thought are the pertinent phenomena, we may study mental behavior in terms both of learning theory and of measurement.

At this molar level, mental or intellectual behavior is a natural system of phenomena, occurring within the individual organism. It is a system because all mental phenomena function interdependently. Furthermore, all such phenomena interact so as to maintain both processes of change (learning and unlearning) and processes of continuing organization or stability.

Mental behavior, in this molar system, is presumed to result from both genetic and developmental phenomena. The develop-

mental aspects of mental behavior vary according to the amount and intensity of the mobilization (functioning) of the genetic and other organic processes, as stimulated and guided by both the natural and the cultural environments. Most, but not all, developmental mental phenomena, we hold, are learned.

Learned mental systems include a great range of subsystems. One of these subsystems of learning, namely, "problem-solving" activities, has been made the chief subject of intelligence testing. In every individual's problem-solving activities, his culturally learned acts influence all the other acts and skills in the system. Therefore, no problem in a mental test may be considered to measure mental ability apart from cultural learning.

We assume that the following phenomena enter into the system of acts that constitute a pupil's response to a test problem; they are, therefore, responsible for the status of one pupil on a test, as compared with that of another pupil:

- H Hereditary phenomena, determining certain complex organic structural relationships and functional patterns, probably organized by the brain and central nervous system. These hereditary factors are almost never the same in a child as in either of his parents, because the number of possible different combinations of the parents' genes is more than 1,000,000. There is no evidence that such hereditary factors are segregated by socioeconomic levels.
- C Cultural phenomena involved in the pupil's degree of experience, obtained in his family or play group, with that particular social environment that determines both the content and the symbols of the test problem.
- C₁ Training phenomena in school and home, involving more specific, repetitive, and purposeful experiences with cultural situations and symbols that are closely related to the test problem.
- C₂ Cultural motivational phenomena, or "drives"; those rewards and punishments that exist at a level sufficient to impel the pupil to use his full pattern of activities to solve the test problem.
- E Emotional phenomena, such as the type and degree of the pupil's anxiety in the test situation.
- S The phenomena of "speed," which are complex functions of the hereditary factors, the physical condition and stamina of the testee at the particular time, his cultural habits of work, his familiarity with the cultural form and content of the problem, and his previous experience or training with this specific type of problem.

The relative success of two persons in solving a given test problem, therefore, depends not simply upon their hereditary equipment, but also upon their relative familiarity with the cultural situations and symbols in the problem, their relative degree of training with similar problems, and the relative strength of their motivation. The factor of time may or may not be involved, depending upon whether the test is a speed test or not.

Cultural Influences upon Problem Solving

The lifelong process by which culture helps to guide, develop, limit, and evaluate all mental problem solving has not received serious attention from either testmakers or educators. They continually make the error of regarding middle-class culture, and even more narrowly, middle-class school culture, as the "true" culture, or the "best" culture. More than 95 per cent of our teachers and professors are middle class in their socioeconomic status. Like all other cultural groups, teachers and professors regard that particular version of culture (those mores, emotional patterns, and social values), which they have learned from their middle-class families, friends, and teachers, as the "best" and only "true" culture. This attitude is powerfully reflected in school curriculums, in intelligence tests, and in teachers' judgments of their pupils. It is an attitude that is fatal to the development of the full mental capacity of either the teacher or the pupil. The belief, for instance, that the skills of reading, or writing compositions, and of learning the usual academic materials are the primary essentials of "education" destroys the real aim of education, which is to learn how to think so as to solve life problems. Most schools do not teach pupils how to explore even the simplest real life problems, how to define their crucial issues, and how to proceed to solve them. The slum schools, especially, seek to teach pupils only how to read, how to carry out memorized, routine arithmetical operations, and how to paraphrase textbooks. Furthermore, intelligence tests seek to predict this kind of behavior; therefore, they include chiefly those problems that are closely related to the culture of the schools.

In acquiring this middle-class academic culture, children of low socioeconomic groups, on the average, do not perform well, either

on scholastic tasks or on the intelligence tests that are designed to measure types of learning closely related to scholastic problems. These low socioeconomic groups fail because their parents themselves have not been trained to read; nor do they regard reading or school curriculums as important. Moreover, neither the parent nor the child's social group urges the child to practice reading or school exercises, nor sets him an example for attainment in this field. The parents and friends of the average child in the high socioeconomic groups, on the other hand, do offer him a powerful example of their skill in reading and in the school type of culture. Furthermore, this latter group of parents consciously and unconsciously reveals an interest in the child's learning this behavior; they likewise afford him practice in such problem solving. For this very reason, Binet and Simon continually stated specifically that reading and other school-type activities were suspect as devices for measuring the intelligence of such children.

This example of reading skill should focus our attention upon the primary role of culture both in identifying those problems that a specific human group regards as important, and likewise in training members of this group to think about such problems. "Culture" means all behavior and thought learned in conformity with a social group. Pupils coming from the top and bottom social strata live in cultures which, though alike in certain fundamental American activities, are yet different in many other cultural habits and motives. At a great many points, therefore, their cultures differ with respect to the types of problems they teach each group to recognize and to solve.

Every human being goes through three essential steps in solving any mental problem. First, he must become aware that there is such a problem. Second, the problem solver must define the essential issues of the problem; that is, he must recognize exactly what type of relationship (such as that of oppositeness, similarity, or analogy) he is asked to discover between two or more variables. (Culture sets and teaches this convention by which the crucial aspects of a relationship are defined. Thus, "opposites" are defined by academic culture as the extremes within a given category or continuum, and not as simply completely unlike concepts. In intelligence tests, moreover, a large proportion of all questions admit of two or more interpretations; only cultural experience with intelli-

gence tests or similar academic problems will enable a pupil even to define the problem as the testmaker requires.)

Third, the individual who solves a mental problem must learn a method, which so correlates the decisive elements of the problem as to reveal their "true" relationship. (Culture states this method for nearly all mental problem solutions, for nearly all human beings. Only one human mind out of millions can discover valid new methods; these in turn are taught by the culture.)

Extremely powerful, then, is the force of culture in determining both the types of mental problems that human groups discover and explore and, second, the methods and skills by which these problems are solved. If the same tests of mental problem solving are to be used with children of all socioeconomic cultures—and this is inevitable in public schools—how is this problem of cultural difference to be solved?

We have tried to state the general cultural issues involved in any effort to measure the comparative level of problem-solving activities in different individuals. It may clarify our grasp of the issues further if we examine the course actually followed by testmakers with respect to eliminating cultural bias.

Binet and Cultural Influences

Alfred Binet excelled all his successors both in the realism of his test problems and in his desire to control the cultural aspects of these tests.

Binet made it perfectly clear that he had been greatly concerned over the danger that large sections of his test measured chiefly the effects of cultural training rather than of "mental capacity." He had eliminated certain tests, he wrote, because their solutions could be greatly facilitated by the home or school training of the child.

There are tests which require a knowledge outside the intelligence of the child. To know his age, count his fingers, recite the days of the week indicate that he has learned these little facts from his parents or friends; we have thought well to suppress these three tests. There are tests too exclusively scholastic, as that of reading and retaining a given number of memories of what has been read, or copying a written model, or writing from dictation. We suppress these.

Even more radical was his decision to eliminate his one test involving reading: "In our new series of tests, that of reading is eliminated, because it belongs to the degree of instruction. . . ." In seeking to avoid problems whose solution could be influenced by either home or school training, Binet went so far as to eliminate questions requiring a child of six years to tell his age, or a child of seven years to copy a sentence, or a child of nine years to "read and retain six facts." Those tests eliminated by him because they had scholastic and other cultural bias included:

- Tests of 6 years: Tell the age.
Distinguish evening and morning.
- Tests of 7 years: The fingers of the hand.
Copy a written sentence.
- Tests of 8 years: Read and remember two facts.
Write from dictation.
- Tests of 9 years: Days of the week.
Read and retain 6 facts.

Binet then considered the research of Decroly and Degand, which indicated that 47 children tested in Brussels, of "a social class in easy circumstances," showed an average advance in test level of one and one-half years over Binet's "working-class" children. Binet could not face the implications of this fact, when considered in the light of his own views that home and school training influenced the responses to most of his test problems. First, he himself conducted a better and more conclusive research, in which he had M. Morlé test one group of children of high socioeconomic status and another of low socioeconomic status. This research also revealed that the children of low socioeconomic groups did less well on Binet's tests, and that they also did less well in scholastic work. At the same time, Binet pointed out that nearly all the problems in his tests were "correlated" with cultural "aptitudes," which he called "home training," "attention" (motivation), "language," "habit of looking at pictures," and "scholastic exercise."

At this point, Binet stopped reasoning. He simply ignored the facts in making a final estimate of his tests. He could not, or would not, follow through to the obvious conclusion that other kinds of problems were needed. Although he said that these types of training were more highly developed in the schools and homes of children

of high socioeconomic status, and although he knew, from his own research, that children of high socioeconomic status had a much easier time with his type of tests, he did not face the clear inference that his tests were not a fair basis for comparing the mental capacity of children of different socioeconomic levels. Intellectually honest and self-critical as he had shown himself to be in his previous work, Binet's failure in this respect may perhaps be attributed to his final illness. Yet his insight into this crucial issue, namely, that of the cultural content and form of mental problems, was far greater than that of subsequent testmakers.

This brings us to a consideration of the "mental tests" now widely used in schools. How have the problems in these tests been selected, and what is the evidence that they are valid measures of "mental ability" or of "capacity to learn"? In analyzing these issues, one must remember that, in spite of the vast amount of research done with regard to other aspects of the present tests, there has been no adequate research carried out upon—

- a) the choice of a representative cross section of mental systems and problems, or
- b) the discovery of problems and symbols that are equally familiar and motivating to all socioeconomic groups, or
- c) the discovery of the proportion of items that favor rural as compared to urban groups, or
- d) the discovery of the proportion of ambiguous problems having two or more correct answers. (Such problems exist in all present tests.)

How and why have the present problems been selected? Binet, and many of his successors, chose only those problems that were answered correctly more often by "good" pupils than by "poor" pupils. "Goodness" or "poorness" was judged by reference to a pupil's school achievement. A "good" pupil was one who received high marks in school or who was not retarded in his grade placement. Thus the validity of an item was based upon its correlation with school achievement.

Since testmakers have been unaware of the cultural influences upon both school and test behavior, they have not understood that this method of so-called validation is circular. To prove that a given problem, or test, measures problem-solving behavior, one must find

a significant positive relationship between that test and some independent measure of problem-solving activity. But teachers' ratings of pupils are not independent of the activity measured by the standard tests. Consider that the tests include chiefly verbal or picture problems, based upon highly abstract academic concepts. So does the school curriculum. Therefore, a teacher's rating of a pupil is an estimate of the pupil's performance on the same kind of problems as those in the standard tests. Grade placement, likewise, is a measure of a pupil's success on this same kind of academic problem. Neither the teachers' ratings nor grade placement, therefore, may be used as an independent measure against which a test of general problem-solving behavior can be validated.

Furthermore, as Binet himself pointed out, school achievement depends largely upon traits of character, rather than upon mental capacity—upon attention, drive, desire for success in the middle-class culture. Lack of this drive causes the children of low socioeconomic groups to do poor school work. Thus, teachers' ratings are partly an index of work habits and motivation, as well as of mental capacity.

The mistake into which Binet and other testmakers fell, in using grade placement or teachers' ratings, was still more serious, because teachers' ratings differ in their meaning from school to school. Thus a good pupil in a slum school usually is not equal in scholastic achievement to a good pupil in a school for high socioeconomic groups. The teachers' ratings of the former pupil means usually that he is good only as compared with the pupils in that school.

Exactly this error was the cause of Binet's failure. The pupils upon whom he attempted to validate his test all attended schools for working-class children. Thus, his good pupils were not as highly skilled or motivated, for his type of tests, as were pupils in the richer neighborhoods. Therefore, judging the proper age level for a test by his working-class sample, Binet set the age levels of his problems too high. When Decroly and Degand found that children from high socioeconomic groups solved most of these problems at an earlier age, Binet saw his own error. But he was unable to find a way to correct it, for he could not think of any more objective way of selecting problems.

That is, Binet could think of no independent measure by which to judge the validity of his tests. Nor has any testmaker since Binet

been able to validate his tests against some other measure of problem-solving activities, which is different in kind. To say, for instance, that a test is a measure of intelligence simply because it correlates highly with another standard intelligence test is to reason in a circle. For all such tests are obviously based upon the same academic type of culture. They correlate highly with one another for the same reason that the individual problems in all such tests also correlate highly with one another and with the test as a whole.

In seeking to justify their selection of problems, testmakers have made arbitrary claims, with no research evidence; or they have grasped at expedients peripheral to the main issue. Terman, when he made the first Stanford-Binet test, followed Binet in choosing only those problems highly correlated with school ratings and school progress. Like Binet, furthermore, Terman selected only those problems that distinguished between adjacent age groups. Whereas Binet considered a problem "normal" for that age group in which 50-60 percent of the respondents answered correctly, Terman's standards for age placement varied more arbitrarily. In Year VIII, he placed some problems that only 55 percent of the respondents answered correctly; in the same year, he placed other problems that 90 percent of the respondents answered correctly—a range of 36 percentage points!

The basic aim in selecting test items should be to control "socioeconomic differentials." For it is the socioeconomic bias in the selection of problem areas and of specific test items that determines, in turn, the "age" differences. Many persons certainly will be astounded by this view. Yet, before rejecting this analysis, they should consider carefully the closely related problem of "sex differences" as handled by testmakers. For problems showing different levels of performance by boys and girls are thrown out by the testmakers!

Why? Terman's remarks are interesting: "This was done for the sexes separately as a basis for eliminating tests which were relatively less fair to one sex than the other."

How can a mental test be "less fair" to boys than to girls? It involves no organic sexual differences, so far as we know. There is here no question, apparently, of different cortical structure, or glandular secretion. Clearly, then, if a question is unfair to boys, as compared to girls, it must be that their social experience is different, on the average. Their training as males or females in the family,

school, and play group differs, and therefore the amount of experience they have had with various types of mental problems differs. Their social motivation, as boys or girls, to learn how to solve such problems must also differ. Terman certainly did not believe that girls were genetically superior to boys in mentality, or vice versa.

Thus, upon what must have been a purely social and cultural basis, that is, upon the conviction that any problem was "less fair" if either sex proved "superior" to the other sex in solving it, Terman eliminated all such problems from his test.

Upon exactly the same principle as Terman used to control sex bias in tests, one might throw out all problems in which any socioeconomic group proves superior. There is no evidence, and no theory shared by the leading human geneticists, to the effect that the underprivileged socioeconomic or racial groups are genetically inferior to the more prosperous socioeconomic groups. There is abundant scientific evidence, advanced by sociologists and social anthropologists during the past twenty-five years, that a child's particular social and cultural environment directs, trains, and motivates his behavior. Thus, any differences between the average response of different cultural groups to a mental problem may be attributed to their unlike cultures. Therefore, all problems that show socioeconomic differences in performance should be ruled out of tests as unfair, just as Terman threw out all problems showing sex differences. Both types of differences—sex and socioeconomic—when existing between large groups, may be assumed to be the result of unlike cultural training and not of genetic sortings.

The recent makers of group tests have erred in selecting problems, as a rule, just as did Binet and Terman. For his Alpha non-verbal test, Otis selected only those problems that discriminate against "retarded" pupils. He explains—

pupils were divided into two groups—a "good group" (in school) and a "poor group"—according to whether the pupils were advanced or retarded for their ages. The value of each item was then investigated as follows: The percent of the "good group" which passed each item was found and the percent of the "poor group" which passed each item was found. Only those items were retained which showed a distinct difference between those two percents.

But we know that those groups of children in elementary schools who are retarded in grade placement are overwhelmingly from the

lower socioeconomic groups. Therefore, Otis' method, like Binet's and Terman's, rules out all problems on which the lower socioeconomic groups are superior!

Otis likewise says that he preferred geometric items for the same reason; i.e., they discriminated more clearly against the "retarded" pupils: "Since the first investigation showed a tendency for 'geometric' items to be more valid [i.e., to be relatively harder for low socioeconomic groups] than purely pictorial items, more geometric items were added." To validate the second and third experimental editions of this test, Otis used a "good group," which ranked highest on a composite score: this composite score was based upon a pupil's scores in earlier forms of Otis' tests and upon the pupil's grade-age position. Both these criteria for selecting problems, of course, also penalize the low socioeconomic groups; for such groups are more often retarded, and the previous forms of the test had been made so as to give them low average scores.

Otis used the same method to select items for his Alpha verbal test. Unlike most other testmakers, however, Otis states specifically that there is a heavy cultural influence in verbal tests. But he does not recommend that his verbal test should therefore not be used to measure the mental ability of the lower socioeconomic groups in the United States.

Otis likewise chose only those problems for his Beta test (grades 4-9) that were easier for those pupils "who were making rapid progress through school" and much more difficult for those pupils "who were making slow progress through school." The same error exists, therefore, in the validation of this test.

Henmon and Nelson used the same kind of circular reasoning in selecting their problems. They explain: "Only such items as proved to differentiate between pupils of known superior and known inferior mental ability were retained." In other words, no independent measure of validity was found.

Edward B. Greene, author of a standard text on measurement, illustrates in a chapter on the selection of test items, the "best method" for selecting items. This method divides the group of pupils (on whom validation is being based) into thirds, judged by their total scores on the experimental form of the test. An item is considered a valid item if a higher percentage of the top third of pupils (judged by total scores) passes it than of the lowest third. Any item

on which the performance of the lowest third is as good as, or superior to, that of the highest third is to be thrown out.

Thus, it is impossible to get a range of types of problems in the test. Since the author always starts with academic types of problems, and since the top third of the pupils on these academiclike problems will be chiefly the middle-class pupils, the test inevitably will include more and more such problems. The lowest third of pupils, who will be chiefly in the lowest socioeconomic group, will not be allowed to show, in the final test, any of the activities at which they are superior or equal.

Terman and McNemar selected for their group test only those items which showed: ". . . successive increments from Grades 7 to 9 to 11, in the percentages [of pupils] giving correct responses. . . . The average per cent passing an item for the three grades was used as the final measure of item difficulty." Although they did not use pupils' ratings and grade placement as criteria for selecting items, they got the same result as those testmakers who did. For their group test has a higher proportion of items that discriminate between high and low socioeconomic groups, at age thirteen or fourteen, than either the Otis or Henmon-Nelson.

The reason for this high socioeconomic discrimination is that Terman and McNemar chose a very narrow range of academic problems, all of which were verbal. As we have pointed out, middle-class pupils really are "older" mentally on such problems. Therefore, if one restricts his test to academiclike areas, he will get very high discrimination between socioeconomic groups, even if he overtly selects problems merely because they show age differentiation. He has already discriminated effectively against the low socioeconomic groups by deciding to use only verbal analogies, verbal opposites, syllogisms, etc. He gets significant increases in the percentage of pupils passing such items between grades 7 and 9, and 9 and 11, because the pace of middle-class school and home training increases in such language areas at these ages. Furthermore, since he chooses only those items that show the largest increment, from age to age, in percentage passing, he selects exactly those items relatively easiest for the children of the higher socioeconomic status. For it is the middle-class pupils who are responsible for the big jump in percentage passing this kind of item. As has been said, their progress in verbal school training is accelerating at these ages, whereas

the rate of progress of the low socioeconomic groups is decreasing. Another criterion, used by Terman and McNemar for selecting problems was—

the tetrachoric correlation of each item with the total score based on all three test forms [computed for Grades 7, 9, and 11 separately]. No item was retained which yielded an average tetrachoric correlation [for the three grades] of less than .30 and only 10 per cent of the final items have validities of less than .40. The average coefficient for all retained items was .53.

This is still a circular validation. It does not indicate that the whole test is a representative sample of mental problems, nor does it set up any independent measure of mental ability. It simply says that the test is of one piece. But that is exactly why the test does not measure mental ability; it is restricted to verbal systems of academic problems. Kuhlmann and others likewise have used this criterion of significant correlation between an item and the total score as a basis for selecting each item.

The authors of the California Test of Mental Maturity have stated that they have found "no purely objective criteria" to use in validation. Instead, they have relied upon significant correlations with other tests of mental ability (from our point of view, this indicates that the test is a poor one) and upon "samplings" of "factors."

This second effort to validate follows Thurstone's method. Thurstone himself, however, has depended upon conventional academic types of problems. To select problems so as to obtain "factorial saturations" does not of itself meet the basic requirements for a fair test. First, one must sample a wide range of "factors." One must also, and above everything else, see that the factors are expressed in common cultural symbols. Verbal comprehension, for instance, must be tested in the language of the respondent. If there is a mental factor for verbal comprehension, certainly it is equally distributed genetically throughout all socioeconomic groups. The lower socioeconomic groups, however, talk in their own language, which is a dialect.

By far the best theoretical analysis of the unsound basis of validation used by testmakers has been that of F. Kuhlmann and Rose G. Anderson. These authors see clearly the errors in present tests, and, by common sense, they have done a little to improve them, but nothing to validate adequately their choice of items. They

have simply selected those items for which the percentage of correct answers increases most rapidly with age of pupils. We have already shown that this method, when applied to academic types of problems, inevitably leads to the selection of those specific verbal, picture, or geometric problems in which middle-class pupils are most superior.

Kuhlmann and Anderson recognize the bias that exists in the selection of mental areas, and of specific problems.

In selecting tests, the utmost care should be exercised in finding what is universal and common to all in both school and home. The final answer to how near any test comes to meeting this requirement can be reached only through extensive research, of which relatively little has yet been done. The present selection of our tests as regards this factor was done, of course, by inspection. The research necessary to determine this question experimentally would have been far more extensive than all the rest taken together.

Since they have not done this research, they do not know how to get "common problems."

The difficulty of solving the problem of test validity has led to some novel arguments. Thus Terman and McNemar say:

Validity. In the early days of the development of group tests of mental ability an attempt was made to validate them by correlating the scores with teachers' marks. As has been pointed out many times in the intervening years this procedure is unsatisfactory because of the serious shortcomings in teachers' judgments of mental ability. The best evidence of the validity of the Terman test is to be found in its successful use over the period of years since the test was first issued. Many instances may be cited where the Terman test has been used with great success in guidance and administration. In some situations where the use of the Terman test with entering high school students has been made a standard practice, it has been found that year after year those students who graduated with honors were those who made scores in the highest range of the test. The correlation of the revised test with the original test is .91, which indicates that the new test can be considered to be measuring essentially the same basic abilities covered by the original forms.

Exactly what is it that pupils who ranked high on this test have also accomplished? They have received high ratings from their teachers. •

E. B. Greene gives the usual definition of validity: "Thus a valid test of intelligence is one which distinguishes correctly between those who are judged by competent judges, to have various degrees of this ability." In practice, these "competent judges," presumably, are teachers. But what guarantee have we that any group of judges knows, and will be guided by, the basic requirements of (a) range of mental systems, and (b) cultural communality, of the problems within each area? On the contrary, we know that the "judges" have not recognized these criteria, but have used largely middle-class cultural problems as their guide.

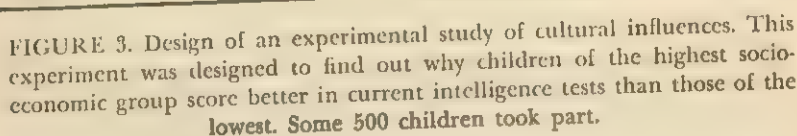
Experimental Study of Cultural Influences

We have now reviewed the methods employed to select both problem-solving areas and also specific items for the present tests, as well as the efforts to validate these selections. These methods, as we have shown, have resulted in tests that discriminate significantly between high and low socioeconomic groups. The crux of our problem, then, is to discover why the present tests have proved far more difficult for the lowest socioeconomic group. In seeking an answer to this question, and following an experimental design set up by Ernest A. Haggard, we have conducted a large-scale experiment with pupils of ages nine and ten, in order to measure the relative importance of various cultural phenomena in test responses, as between the highest and lowest socioeconomic groups. These cultural phenomena were:

- a) Cultural symbols (words or pictures) used in test problems.
- b) School-training of pupils in related problems.
- c) Specific rewards for pupils.
- d) Oral vs. written presentation of problem to pupils.

This central experiment, designed to test the basic hypotheses underlying all the various parts of our research, will be described in a later article, and more fully in a monograph.

Here we may report, however, that we experimented with 516 pupils, equally divided between the highest and lowest socioeconomic groups. Using groups (cells) matched for chronological age, I.Q., and socioeconomic index, we tested pupils with standard test items and also with similar items, which we had made fairer cul-



Each of these halves ("practice" and "nonpractice") had been further divided into half, so that one-half (one-quarter of total sample) received the promise of a movie ticket if they worked hard in the practice sessions, whereas the other half of each practice and nonpractice group were told nothing of a reward. Finally, on the fifth day, half of each such group were told that they would receive a movie ticket if they did well on the retesting that day, and the other

half of each cell were told nothing of a reward. Half of all the cells then were retested with the standard tests, and the other half with the "culturally fair" items. On the retesting, two of the cells were given the culturally fair tests orally, so that reading by the pupil was not necessary. Figure 3 may help to clarify the design of this experiment.

Until a detailed report of the analysis is published, it is important to notice for our purposes here that the lowest socioeconomic group improved at the same rate as did the highest socioeconomic group. Motivation during practice decreased the attainment of the highest socioeconomic group significantly, on the standard test items. Motivation during the test helped the lowest socioeconomic group significantly more than the highest. Practice, only, did not help the lowest socioeconomic group significantly on the standard test items, but practice, only, did help the highest socioeconomic group significantly on these items. Both socioeconomic groups performed better on the culturally fair test than on the standard tests, but there was a strong tendency for the lowest socioeconomic group to gain more than the highest socioeconomic group on this culturally fair test. (The items were verbal, paper-and-pencil items.) Finally, it is important to notice that on the culturally fair tests, the lowest socioeconomic group performed better on the oral (no reading) than on the regular (reading) presentation, whereas the highest socioeconomic group did slightly better on the regular than on the oral presentation.

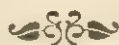
It seems clear to us that if they wish to construct tests to determine the relative mental status of individuals who have grown up in different socioeconomic levels in the United States, the testmakers must take three major steps:

1. They must sample a far wider range of mental activities and thus greatly reduce the importance now given to academic types of problems.
2. They must choose problems that are equally common and equally motivating to all socioeconomic groups, and they must express these problems in symbols that are culturally common.
3. They must discover an objective method of validating their choice of problems, to replace the circular validation now used.

RALPH W. TYLER

Educability and the Schools

Evaluation of the adequacy of pupil progress involves some assumption about the educability of the pupil under consideration. The teacher, in effect, is constantly asking, "To what extent can I help this pupil make more rapid gains in the achievement of this educational objective?" There is, however, another and frequently overlooked question: "To what extent does this pupil have areas of educability of which I am unaware because they are not represented in my educational objectives?" Dr. Ralph W. Tyler considers both of these questions, pointing out the importance and consequences of the distinction between them and suggesting ways in which the teacher can arrive at more adequate answers to both.



Any discussion of educability is likely to bog down in confusion. Much of this confusion is caused by failure to distinguish the theoretical from the operational definitions of educability. The term "educability" implies a potentiality for education existing in an individual or in a group of individuals, whether or not these individuals actually become educated, but the existence of educability can be demonstrated only by their actual response to educational opportunities. Hence, although we can theoretically postulate certain characteristics which, if possessed by persons, provide the essential potential of their education, nevertheless, any objective test of such postulates requires the demonstration that persons with these characteristics actually respond to educational opportunities while

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those without them do not. Therefore, any tested concept of educability is dependent on the kind of educational opportunities that are available.

It is possible to conceive of persons who are educable but for whom we have not yet devised appropriate educational programs. We cannot demonstrate this concept, however, until we devise these programs. This limitation is serious since, as almost everyone will admit, our present educational opportunities are not ideal and are restricted both in terms of the concept of ends to be attained by education and in terms of the adequacy of the means for education. Hence, a more comprehensive understanding of educability is dependent partly on the development of more adequate educational opportunities and on experimentation with more varied means of education.

In relation to the schools, educability is particularly involved in this confusion growing out of our failure to recognize that its operational definition depends on the objectives of, and the available opportunities for, education, whereas its theoretical definition is not so limited. From the standpoint of the practical work of the schools, the problem of educability can take one of two forms. The first form can be stated in the following terms: Given our present American schools, with the ends which they accept and the means which they provide, what measurable characteristics of persons can be used to predict the extent to which these persons will do successful work in the schools? The second form can be stated as follows: What measurable characteristics of persons can be identified that reveal abilities which can be developed into socially or personally valuable behavior if school programs are planned and administered to capitalize on these abilities?

The first formulation of the problem accepts American schools as they are with reference both to ends and to means. Expressed in operational terms, the problem becomes one of finding in individuals measurable characteristics which are correlated with success in these schools.

The second problem, on the other hand, does not accept American schools as they now are; it does not consider the present ends and means as fixed. In operational terms, the second problem is one of identifying and measuring characteristics that, on hypothetical grounds, are basic to various types of learning and then of experi-

menting with persons possessing these characteristics to discover whether they have potential talents that can, through learning, become personally or socially significant. In a sense, the second problem can never be answered once and for all, but it becomes a matter for continuing long-term research. The failure to distinguish between these two problems causes much of the current controversy over educability as a concept guiding school practices.

THE FIRST FORMULATION

Research Concerned with the First Formulation

The research conducted over the past fifty years has been particularly significant in dealing with the first formulation of the problem. The pioneer work of Binet in developing intelligence tests was quickly seized on by research workers in this country. Many American scientists constructed psychological tests and validated them largely in terms of their correlation with the success of pupils in our present American schools. Thousands of studies have been made of the results of these tests. From these investigations we know that, of all the characteristics measured, facility in the use of words is most highly correlated with success in American schools. This is to say that so-called "verbal intelligence" is a major aspect of educability when educability is defined as ability to succeed in typical American schools.

From the researches of Allison Davis¹ and others we also know that it is not verbal facility in terms of the vocabulary characteristic of the individual's own social group that is highly correlated with success in American schools but rather this facility in the use of middle-class vocabulary. Lower-class children use a great many words, and a number of them use these words with a high degree of precision, but facility with words commonly used by the lower classes is not correlated with success in school. In general, our present American schools are most successful with children who have a large middle-class vocabulary and who use these middle-class words with a fair degree of precision.

1 W. Allison Davis and Robert J. Havighurst, "The Measurement of Mental Systems," *Scientific Monthly*, 66 (April, 1948), 301-316.

Research of the last fifty years has also demonstrated that the ability to handle number relations, sometimes referred to as the "quantitative factor" in intelligence, has some relation to success in contemporary American schools although the correlation is considerably lower than that between verbal facility and success. This quantitative factor is of most significance in mathematics and engineering. Even in these fields, however, the verbal factor shows a somewhat higher correlation with students' marks than does the quantitative factor. Although many other so-called "factors of intelligence," such as spatial factors, reasoning factors, and the like, have been measured, none of them has a high relationship with success in most courses in the present American schools. Hence, so far as the factors now measured by intelligence tests are concerned, it is possible to appraise educability for the majority of school courses primarily in terms of quantitative factors. Furthermore, it is possible to indicate, at least roughly, the mental age required on specified intelligence tests for success in particular school systems.

Motivation

Recent research has made further contributions to the solution of the problem of educability as first formulated. Certain other components of educability have been identified in addition to those measured by intelligence tests. Of these, motivation to learn school tasks, or, in general, to do good work in school, has a significant correlation with school success. With intelligence-test scores held constant, the correlation between measures of interest in school work and average marks in school is usually positive, averaging about .30. This compares with a mean of about .50 for the correlation between intelligence-test scores and success as measured by average school marks. Furthermore, motivation is particularly significant in predicting the number of years of schooling which a person will get. The primary differentials between those students who graduate from high school and go on to college and those who drop out after graduating from high school are income of the parents and interest in school work.

In recognizing the importance of motivation as a factor in educability, it is necessary also to realize that motivation is not an inherent characteristic deeply based in the biological mechanism of a

human being. Much of individual motivation is acquired from a variety of sources; even school experiences themselves may sharply modify the motivation of an individual. Studies in child development at a number of centers indicate that the parents' attitude toward the school greatly affects the child's motivation. If the parents look on the school as a means by which their children can attain greater opportunities than they themselves have had and if they place great emphasis on their children's success in school, the probabilities are more than two to one that the children will show interest in succeeding in school. On the other hand—and this is particularly characteristic of many lower-class parents—if the school is viewed as a "sissy institution," a place in which children must remain until the compulsory attendance law permits them to do useful work, then it is likely that the children's attitude toward school will be negative and their corresponding motivation low.

The child's experience in school also affects his motivation. If he is encouraged by the teacher, is reasonably successful, and is happy in his relations with other children in school, it is again likely that motivation will be positive. On the other hand, when the teacher views the child as a "dirty little brat" who never seems to learn and who usually makes trouble for him, it is likely that motivation will be low and will decrease as the child moves through school. Hence, although motivation is an important factor in educability, it is neither an inherent factor in the individual nor a constant one. It is affected by home environment, cultural contacts, attitudes of the child's peer group, and school experiences.

In contemporary American schools it is possible to measure motivation with a fair degree of accuracy by the time the child has reached Grade IV or V and, from these measurements, to make predictions about his later success. Interestingly enough, motivation so measured at this stage in the pupil's development rarely changes markedly from this time until the end of high school. However, it is likely that this relatively fixed index of motivation is not attributable to the principle that motivation is inevitably fixed by the age of ten or eleven but is more probably due to the fact that the home, community, and school environment are so consistent in the kinds of things they emphasize over the years that there is no compensating condition affecting the children to modify the type of motivation developed in the first few grades of school. Thus, with Amer-

ican schools as they now are, it is possible to measure and predict motivation with a fair degree of precision by the middle of the elementary school.

Background Experience

Another research finding of importance in attacking the first formulation of the problem of educability is the demonstration of the significance of the experimental background of the child at the time he enters school and of his out-of-school experiences during the time he is enrolled in school. For example, a number of educational psychologists have pointed out the significance of what is commonly referred to as "reading readiness." Upon examination of the exercises used to measure reading readiness and the activities provided in the school to develop reading readiness, it becomes clear that reading readiness involves primarily a background of concrete experience, related to the content of the material that the child is to read in school, and the building-up of an oral vocabulary appropriate to this experiential background.

In similar fashion it has been shown that effective work in arithmetic requires a background of experience in handling quantities of concrete objects and that those children in the school who have a good deal of opportunity outside of school to measure, to weigh, to make change, and to deal concretely in other ways with quantitative aspects of experience are thereby enabled to make more rapid progress in the learning of arithmetic. In general, these various researches show that the kind of experience a child has before he comes to school and the kinds of experiences which he has outside of school during school age have a positive influence on his success in contemporary American schools. Hence, the range and extent of the child's experiential background is a significant aspect of educability.

These researches also indicate that, for prediction of school success, it is not so much the breadth of the child's out-of-school experience, nor even its stimulative features, which are significant, but rather the degree to which these out-of-school experiences are directly relevant to the content of what is being taught in school and also the degree to which they are associated with the vocabulary

used in school. The works of Warner, Havighurst, and Loeb² and of Davis and Havighurst,³ for example, indicate that lower-class children usually have a wider range of certain types of experience than do middle-class children and that they take responsibilities earlier for some kinds of activities, like caring for children in the family. In these areas of experience their parents expect them to learn much more rapidly than middle-class parents expect their children to learn. However, these experiences are not usually related to the content of school instruction, and, in most cases, they do not involve the vocabulary with which school instruction will deal. Under such circumstances, the experiences of lower-class children outside the school do not prove to be positive in their effects on educability in contemporary American schools.

With the findings of scientific studies and the instruments of measurement which have been developed, it is possible to appraise educability, in terms of the first formulation of the problem, with a fair degree of precision. As long as American schools and colleges remain as they are, it is possible to predict the success of individuals in these institutions at the elementary-school level, at the high-school level, and at the college level. It is possible to identify children and youth who will drop out. It is possible to find the so-called "superior" students at a fairly early age and to provide for their continued education. It is possible to administer a system of state or national scholarships to provide for the advanced education of those students who are educable in this sense. On the whole, the sciences of psychology, sociology, education, and statistics have made contributions to this field which have not only theoretical, but immense practical value.

THE SECOND FORMULATION

Our past success in dealing with the first formulation of the problem of educability, however, should not blind us to the fact

² W. Lloyd Warner, Robert J. Havighurst, and Martin B. Loeb, *Who Shall Be Educated?* New York: Harper and Bros., 1944.

³ W. Allison Davis and Robert J. Havighurst, "Social-Class and Color Difference in Child Rearing," *American Sociological Review*, 11 (December, 1946), 698-710.

that this is not a satisfactory formulation for a long-term program. The identification of persons who are educable in our present schools and colleges and the definition of the characteristics associated with success in school are inadequate because our schools and colleges as they are now conducted are not ideal and do not accomplish all that an enlightened citizenship would expect of a comprehensive system of elementary, secondary, and higher education. There are several respects in which the present practices in American schools and colleges are inadequate to deal with educability in the sense of the second formulation of the problem, namely to provide opportunity for the development of all talents which persons possess that can be trained for desirable personal and social ends.

The Aims of the Schools

The schools are inadequate, in the first place, with reference to their real aims. By and large, although there are many noteworthy exceptions, American schools and colleges place primary emphasis on memorization of textbook content and on the development of certain limited subject skills, like computation in arithmetic, grammatical usage in English, and reading at the plain sense level of interpretation. The development of an intelligent person—one who is able to analyze problems, to think them through clearly, and to bring to bear on them a wide variety of information, who understands and cherishes significant and desirable social and personal values, who can formulate and carry out a plan of action in the light of his knowledge and values—is not the goal toward which schools and colleges are aiming in practice. Yet it is an end which is essential to the adequate education of a competent citizenry.

Furthermore, in a world as complex as ours, a wide variety of special abilities and talents can be utilized. The tendency of the schools to capitalize solely on verbal abilities does not take into account what could be gained by more adequately educating persons who have other talents which are often unidentified and usually untrained. If broader objectives were aimed at by the schools and colleges, it is quite conceivable that the characteristics of persons who are educable in this sense are more varied than are indicated by previous studies in which the objectives of the schools and colleges are so narrow and the requirements of school and college edu-

cation are so largely those of a verbal sort. If we seek to educate those persons whose thought, feeling, and action are unified and guided by a high sense of social values and a broad understanding of the situations with which they deal, it is probable that the factors important in educability for such purposes are more extensive than those which have been identified in previous studies.

At this point the question may be raised: Why do the so-called "general intelligence tests" fail to give us an indication of a variety of abilities that could be developed if the aims of schools were broader. By and large, the general intelligence tests used in America have been validated by checking each item in terms of the relative school success of those persons answering the item correctly and persons failing the item. This procedure has resulted in the elimination of items that do not show this kind of differentiation in terms of school success. An item on which students who get poor marks in the present school do just as well as students who get good marks will not be retained. As might be expected, this practice increases the validity of the test as a means of predicting success in contemporary American schools, but it has caused the elimination of a number of items which are nonverbal in character and has heavily weighted intelligence tests with verbal items, and particularly with items that involve academic and middle-class vocabulary.

Eells⁴ and Murray⁵ have shown that more than three-fourths of all items in the most widely used intelligence tests of today sharply differentiate middle-class from lower-class children. They have also shown that lower-class children are frequently familiar with the object or the phenomenon named in the vocabulary item but that they do not have the same terms for referring to it. Furthermore, so far as problem-solving exercises are concerned, the typical intelligence tests lean heavily on academic, school-type problems, whereas lower-class children frequently have had more experience than have middle-class children in dealing with the kinds of practical problems encountered on the street and in the playground. That is to say, it seems clear from such researches that youngsters

⁴ Kenneth W. Eells, "Social Status Factors in Intelligence-Test Items." Unpublished Doctor's dissertation, Department of Education, University of Chicago, 1948.

⁵ Walter Isaiah Murray, "The Intelligence Test Performance of Negro Children of Different Social Classes." Unpublished Doctor's dissertation, Department of Education, University of Chicago, 1947.

who do not show up well on intelligence tests do possess abilities that indicate some skill in solving practical problems and that suggest potentialities for further education if the schools had broad enough goals to utilize talents of these kinds.

The Means Used by the Schools

Not only do our present schools and colleges fail to aim at a broad set of ends, but they also are inadequate with respect to means. For example, the medium of communication and of expression in the schools is largely a verbal one. Although most educators recognize the existence of a wide range of mediums of communication, including pictures, diagrams, motion pictures, radio, and other auditory materials, as well as concrete experiences in laboratories, shops, and in the community, the typical American school makes little use of these nonverbal means of communication. A child who has not already developed a middle-class vocabulary and who comes from a home in which the words used by teachers and textbooks are not common, finds it difficult to benefit from school work because of the failure of the school to provide a wide enough range of mediums of communication to draw to any great extent on the child's experience as a basis for learning. It seems probable that, if the schools used a wider range of mediums of communication, we should have more avenues for communicating with them and more avenues of expression by which they could demonstrate their learning and continue practice until their learning became more adequate. The broadening of the mediums of communication and expression used in schools and colleges should make it possible to identify wider ranges of talent with which the school could work effectively. This extension would then broaden our concept of educability.

Inadequate Use of Motivation

A second inadequacy in the means of education used in American schools to capitalize on all the existing learning potential is the employment of motivation, including rewards and punishments, that has primary significance only for the middle class. Warner,

Havighurst, and Loeb, in their little volume, *Who Shall Be Educated?*⁶ have spelled out the implications of recent research on the social-class structure of American society for the motivation of school learning. Middle-class children are typically encouraged by their parents to do good school work. The ideals held by teachers, such as cleanliness, "good language," neatness, avoiding fights, and the like, are the ideals emphasized in middle-class homes—ideals which middle-class children generally accept and approve. On the other hand, these ideals have not been emphasized for lower-class children nor made a part of their value system. School work is not highly regarded in most lower-class homes. Cleanliness is difficult for them to attain and is not usually emphasized by lower-class parents. Fighting is viewed as desirable, not something to avoid. In most cases, to refuse to fight would mean that the child would be injured and would lose status with his playmates. Hence, in our present American schools, teachers expect lower-class children to follow a value system which, in many instances, is in opposition to the one which they follow outside the school. Furthermore, most middle-class teachers are unable to mask their disgust at the language, the filth, the odor, and the rough behavior of lower-class children. As a result, many lower-class children receive little encouragement at school and almost no rewards and symbols of success.

Thus, when these children bring any talents to school, their talents are not likely to be developed in the classroom; for the methods used for motivation by the teachers are likely to inhibit, rather than to develop, learning among these children. As long as the problem of educability is viewed only in the first sense, as that of identifying those pupils who can get along in schools as they are now constituted, it is clear that our present tests and devices serve rather satisfactorily. If, on the other hand, our concern is to identify characteristics indicating abilities that could be educated under appropriate learning conditions, it is evident that the present methods used in schools may fail to capitalize on some of these abilities. It is, therefore, necessary for us to find out what abilities exist that have learning potentials and to experiment with ways of modifying the schools so as to make the most of the talents the children bring with them.

⁶ W. Lloyd Warner, Robert J. Havighurst, and Martin B. Loeb, *op. cit.*

Limitation of Experience

A third respect in which the practices of our present schools are inadequate to capitalize on potential educability is the narrow limitation in the areas of experience with which schools commonly deal. The fact that writers of textbooks and teachers have come from a fairly restricted middle-class environment may account to a great extent for the limiting of the content of elementary-school reading materials and of the books used in other subjects to those aspects of life which are largely middle-class in character. Elementary school books do not deal with homes as they are known by a large percentage of American children. The books in use treat of business, industry, politics, and the professions, usually in terms of the white-collar participant, rather than in terms that would be most understandable to a large fraction of the children. In so far as background experience is essential or helpful in providing for school learning, the work of the schools has not adequately capitalized on the wide range of background experience which a majority of their children possess.

Lack of Practice

A fourth respect in which American schools do not capitalize on all the potential educable characteristics of their pupils is the way in which practice or repetition is employed. Research in learning has clearly demonstrated the importance that practice or repetition has for effective learning. Things to be learned must be practiced again and again under favorable conditions of motivation. Many of the things taught in school, such as reading and writing and arithmetic, require continuous practice over long periods of time for any sort of full development.

The researches of sociologists and social anthropologists indicate that middle-class children carry on a great deal of this practice outside the school, in the home, and under the supervision of the home. On the other hand, in a large majority of cases, children from lower-class homes do not have the opportunity or the stimulus for practice of school work. Consequently, an important aspect required for effective learning is inadequately provided for many pupils. If the schools were to become conscious of this lack, it seems

probable that some means could be devised for extending opportunities for practice of school learning under conditions that would be appropriate and possible for lower-class children, and thus this essential for effective learning would not so often be neglected.

Failure to Organize Human Behavior in Learning

There is a fifth respect in which present procedures in American schools are inadequate to provide a proving ground for educability—the lack of attention given to the organization of human behavior in learning. Studies of learning show that the initial stages in the development of a skill or in the development of any kind of complex performance are stages in which each fairly specific element is developed rather slowly and that there is little relation among these several specific elements. For example, the studies of Harris⁷ in the field of language-learning indicate that, in the initial stages, vocabulary recognition, simple reading comprehension, spelling, fluency in writing, and so on, are each rather separate aspects of the learner's behavior. Tests of these several types of behavior show fairly low correlations, and the factor analysis of the complex indicates a considerable number of factors at the early stages. On the other hand, as the students gain greater skill and as they have opportunity to practice these various aspects of language-learning in common situations, they become better integrated until, finally, only one or two factors are indicated in a factor analysis of the complex, and we may say that language behavior has been organized into a fairly unitary skill.

Although psychological studies have indicated the importance of the organization of behavior into a few unified skills, abilities, and the like and although philosophy for years has emphasized the importance of the unification of thought, feeling, and action, teaching practices have given little attention to this problem, and the present selection of persons for more and more advanced training frequently results in the development of individuals with high facil-

⁷ Chester W. Harris, "An Evaluation of Language Training in Indian and White Schools." Unpublished report to the United States Office of Indian Affairs. See also Dorothy Knoell, "Factor Analysis of the Performance of Twelfth-Grade Pupils on a Battery of Language Arts Tests." Unpublished Doctor's dissertation, Department of Education, University of Chicago, 1948.

ity in certain somewhat isolated skills and abilities and with little coherent internal organization among the various facets of their behavior. Thus, even at the college level, a number of studies have shown a low correlation between knowledge, attitudes, and intellectual skills. Furthermore, some investigations have obtained a negative correlation between adjustment as measured by the Rorschach test and college achievement, and also between social adjustment as measured by sociometric procedures and college achievement. It may well be that, were attention paid to the organization of human behavior in the development of learning, certain factors which are not now recognized would be found to be significant for educability.

Emotional Learning

Finally, mention should be made of the way in which present school practices fail to take emotional learning into account. The program of the school is primarily concentrated in the acquisition of facts through repeated recitations and in the development of certain skills and habits through continued practice. For both purposes, the motivation commonly employed is a simple system of rewards and punishments. Although crying-spells and outbursts of temper are usually punished, the schools commonly give no explicit attention to the education of emotional behavior. As a result, frustrations, emotional blocks, and other negative emotional factors frequently inhibit effective learning.

During the last twenty-five years, a great deal of experimentation with the education of emotionally disturbed children has been carried on. Bettelheim,⁸ Menninger,⁹ and Sherman,¹⁰ among others, have shown that many children who are suffering from severe emotional disturbance and are learning little or nothing in school are not ineducable. By providing an educational environment which reduces emotional strain and by consciously re-educating the child's

⁸ Bruno Bettelheim, "The Special School for Emotionally Disturbed Children," *Juvenile Delinquency and the Schools*, pp. 145-171. Forty-seventh Yearbook of The National Society for the Study of Education, Part I. Chicago: Distributed by the University of Chicago Press, 1948.

⁹ Karl Menninger, "Report of the Southard School, Topeka, Kansas, 1943."

¹⁰ Mandel Sherman, "Survey of the University of Chicago Orthogenic School." Unpublished report, 1940.

emotions, it is possible to obtain marked increase in the learning of skills, knowledge, and other school achievements. It seems probable, therefore, that a number of the disturbed children in the schools would be educable if proper attention could be given to their emotional development and, in case of severe emotional disturbance, to their emotional re-education.

SOCIAL EFFECTS OF THE FIRST FORMULATION

From the standpoint of its social effects, perhaps the most serious result of attacking the problems of educability in terms simply of predicting the success of children in our present schools has been the way in which this practice has tended to deny more adequate educational opportunity to those students who need it most. In his studies of acculturation in the Southwest, Davis¹¹ has shown that it is common to test children of Negro background, Mexican background, and lower-class children in general with the existing verbal intelligence tests. Their test results are low and are often interpreted by the school administration as indicating very limited potentiality for education. This interpretation serves, on the one hand, to justify teachers in expending little effort in teaching these children, on the grounds that there is not much chance of their learning anyway; and it also serves to justify providing inadequate buildings, poorer teachers, and heavier pupil-teacher ratios for the areas in which these children live. Teachers and principals are not encouraged to devise ways of capitalizing on the talents the children possess when the results of such measurement indicates little or no talent available for education.

OTHER EXPERIMENTATION

Although the majority of studies of educability to date have been concerned with predicting the success of children in our present schools and colleges, there have been some other lines of experimentation that suggest promising leads for the future. Special work

¹¹ Allison Davis, "The Public Schools and Ethnic and Color Groups." Unpublished report to the General Education Board, 1944.

with superior children, schools for backward children, work with emotionally disturbed children, experimentation with juvenile delinquents and with various types of mental deficiency—all indicate clearly that the potentialities for some kind of learning of children and youth at all levels, from the most superior to the least, are greater than are commonly realized.

Our present schools and colleges do not achieve anything like the results that are suggested by the potentialities indicated by these experiments. Typical schools—although, I repeat, there are many noteworthy exceptions—are doing a rather unimaginative job in providing learning opportunities for those pupils already motivated by the home, children whose homes provide practice that accounts for further development of learning. There should be a narrowing of this great gap between the level of present school practice and the potentialities for learning which is indicated by many experimental studies.

SUGGESTIONS FOR IMPROVEMENT

What is needed is an attack on two fronts: (1) on the identification and measurement of abilities which indicate talents that can be developed by educational means and (2) on experimentation with learning, so that we may know how to capitalize on the talents that are thus identified. The first type of investigation will require a rethinking of the whole intelligence-tests problem. In place of seeking validation in terms of school marks, we shall need to look for successful problem-solving in all aspects of life, not only for middle-class children, but also for lower-class pupils. We shall need to study the kinds of problems these children attack; the ways in which they attack these problems; the respects in which their solutions are more or less appropriate; the ways in which the problems are symbolized by different children—whether in words or in other forms; and, eventually, to devise ways of testing for a wide range of problem-solving abilities, so that we can identify in children a more complete range of potentialities for meeting new situations, that is, abilities to learn.

No doubt this investigation will call for the use of a variety of tests, in addition to paper-and-pencil intelligence tests. It will cer-

tainly mean the use of nonverbal as well as verbal materials. However, if we can really identify, in children in all walks of life, a wide range of abilities to learn, we shall have made an important contribution to the concept of educability.

Hand in hand with this development of ways of measuring potential educability must go a wider attack on learning in school and in other controlled experimental conditions. Even as the measurement of potential educability can be guided somewhat by indications of what children are learning outside the school, so studies of children outside the school—studies of the kinds of abilities now utilized by children in informal situations, the mediums of communication they use, the kinds of symbols they employ, the motives they have, and other matters related to learning—should enable us to see more clearly the ways in which we can use learning theory to capitalize on a wide range of abilities not now utilized by typical American schools. The construction of these measures of more varied potentialities for learning and the development of more adequate ends and means of learning will make an intellectual and social contribution of great magnitude.

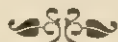
Making children more effective and happy in their lives and creating for society benefits which result from the training and development of a much larger range of talents are important reasons for emphasizing concentration of study on these two phases of an important American problem. We have learned a great deal about educability for our present school programs, but we have only scratched the surface when it comes to understanding educability in the broadest possible framework of what American schools could be. May the next fifty years bring as marked a contribution to this problem as the last fifty years have done to the problem.

ERNEST A. FLOTOW

Charting Social Relationships of School Children

The sociometric test was devised by Dr. J. L. Moreno as a consequence of his theory of social interaction. He asserts that a society is fundamentally a preference, or "attraction-repulsion," system. The sociogram produced by the sociometric system is a measure of the attraction-repulsion system of a specific social group. This technique is usable by and valuable to the classroom teacher, whether or not he can accept Moreno's theoretical views.

Professor Ernest A. Flotow's study shows how the sociometric test is administered and how the results are analyzed. His investigation also suggests the potentialities of this technique for increased understanding of the pupil-teacher relationships in a classroom and for clarifying the relationship between teaching problems and pupil interaction.



Of all the problems which confront a teaching staff, the problem of the socially maladjusted is one of the most difficult to solve. Yet if the school wishes to serve the pupil effectively, the problem must be met, for the child's happiness and well-being in school, as well as in later life, often depend on the successful solution of this

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very problem. What is more, all evidence indicates that the solution must come early in the life of the child, if it is to be effective.

The problem of the socially maladjusted child was attacked in the elementary school in New Lenox by giving a sociometric test to all children in Grades IV-VIII, inclusive. This test indicated the social relationships of the children with one another. The results of the test were tabulated, graphs were constructed, sociograms showing the mutual relationships of the children were drawn, and an attempt was made to identify some of the major factors having a bearing on the social-status scores of the children. Finally, the entire technique and results were evaluated from the standpoint of practical use to the staff and to the children. The test was found to be an effective means of measuring and interpreting the children's social relationships within each classroom.

TESTING PROCEDURE

The test itself consisted of a questionnaire which called for answers to the following questions: (1) With whom would you like best to play? (2) With whom would you like best to work? (3) Whom would you like best to have sit next to you? Three choices were possible for each question, although three choices were not necessarily required if the pupil wished to limit himself to one or two. Through this technique the child was given an opportunity to state his choice of companions for three types of social situations: play, work, and proximity of seating.

The testing procedure was left in the hands of the teachers, who gave the test form and the necessary explanations to the children. These teachers, of course, were well acquainted with the test and the purpose of giving it. The children were assured of complete secrecy in the handling of the information which they gave. This assurance was felt to be necessary, especially in the upper grades, where some delicate boy-girl relationships existed. The teachers believed that, with one or two exceptions, the data which the pupils gave were honest and reliable. As to the validity of the questions themselves, the question dealing with the proximity of seating gave the best indication of strong mutual relationships.

SCORES ON SOCIAL STATUS

Altogether, 135 children were given tests. The total number of choices received by each child constituted his social-status score. The greater the number of choices, the higher his rank in the social-status scale, and vice versa. The social-status score of the 135 children ranged from 0 to 28. The great majority received fewer than ten choices, as Table 1 indicates. Eight children, or 6 per cent, received no choices at all from their classmates, although two of these did receive a choice from a child in another room.

TABLE 1
SOCIAL-STATUS SCORES (NUMBER OF TIMES CHOSEN AS A FRIEND)
FOR 135 CHILDREN IN GRADES IV-VIII

| <i>Score</i> | <i>Number of Pupils Making Score</i> | <i>Score</i> | <i>Number of Pupils Making Score</i> |
|--------------|--|--------------|--|
| 28 | 2 | 12 | 3 |
| 27 | 1 | 11 | 8 |
| 26 | 1 | 10 | 6 |
| 25 | | 9 | 10 |
| 24 | 1 | 8 | 6 |
| 23 | | 7 | 8 |
| 22 | | 6 | 13 |
| 21 | | 5 | 9 |
| 20 | | 4 | 9 |
| 19 | 2 | 3 | 10 |
| 18 | 1 | 2 | 9 |
| 17 | 1 | 1 | 9 |
| 16 | 4 | 0 | 8 |
| 15 | 3 | | |
| 14 | 4 | Total | 135 |
| 13 | 7 | Mean score | 7.8 |

Thirty-six children, 27 per cent, received three or fewer choices and can be termed "isolates" or "neglectees." Some of the factors responsible for the high percentage of isolates and neglectees were the nearness of the school to war plants and the resulting transient school population; the presence of an unusually large number of children from foster-homes, from homes where parents were separated, or from homes with either a stepfather or a stepmother; and an abnormally large influx of maladjusted children from other

schools (nine of the thirty-six children with scores of three or less were pupils who had recently been transferred to this school and, from all reports, had been maladjusted in their former schools).

Sixteen, 12 per cent, received 15 or more choices and can be designated as the "popular stars." It is worthy to note that the isolates and the neglectees outnumbered the stars by more than two to one—a finding which clearly indicated that there was much work to be done in improving the social and personal relationships of those in the lower ranks. The arithmetic mean of the social-status scores was 7.8, and 50 per cent of the children received 7 choices or more.

FINDINGS FROM A SOCIOGRAM

The sociogram of Grade VIII is useful as a means of bringing out the significance of the sociometric method. In the sociogram illustrated in Figure 1 the pupils are represented as falling into one of four concentric circular areas, according to the number of choices received. As in Table 1, the isolates and the neglectees are far more numerous than the stars. Altogether, thirty children were represented in the sociogram, each designated by a number. The broken lines within the sociogram indicate the mutual choices among the pupils. Only mutual choices are shown, on the assumption that a mutual choice tends to show a stronger and more satisfying relationship than does a one-way choice.

Much of the sociogram is self-explanatory; much of it can be understood only by the teacher of the pupils. To the person acquainted with the children, it offers untold opportunity for inference and speculation. A number of observations may be pointed out. The most satisfactory mutual relationships from the standpoint of numbers seem to lie in Area II and in the region adjacent to Area II. Both the boy and the girl in Area I, for example, had fewer mutual relationships than did several of the pupils in Area II. As a matter of fact, the social relationships of the girl in Area I were somewhat unsatisfactory, since she had no mutual relationships with any of the other girls within her room. Another fact that seems to stand out clearly is that a pupil not having satisfactory relationships within his schoolroom will, whenever possible, cross the room

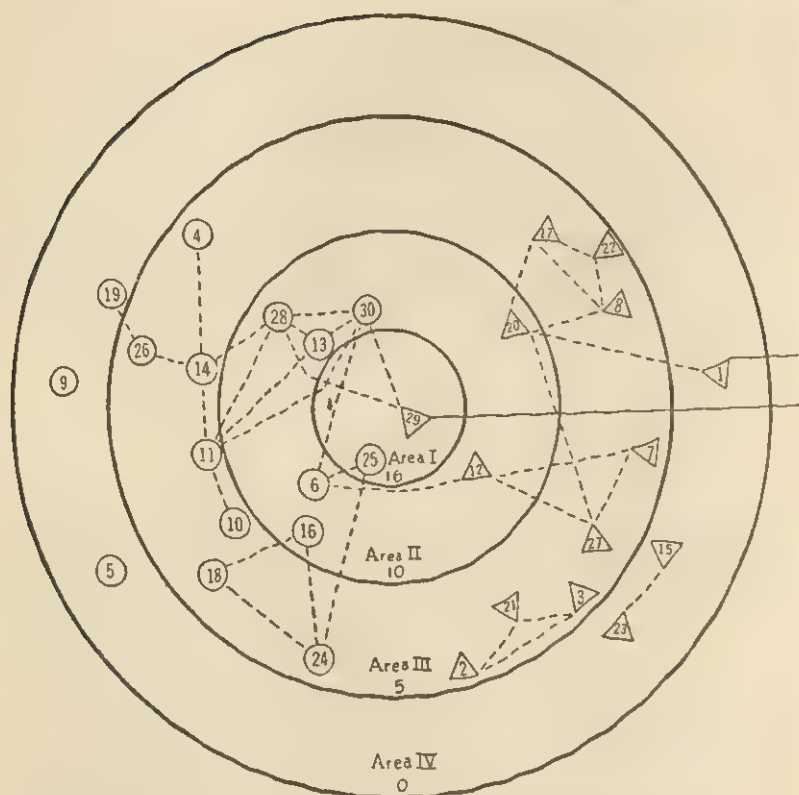


FIGURE 1. Sociogram for thirty eighth-grade pupils, showing mutual relationships with pupils in same grade (broken lines) and mutual relationships with pupils in other grades (straight lines). Small circles represent boys; triangles, girls. Area I includes pupils chosen as friends by other children 16 or more times; Area II, pupils chosen 10-15 times; Area III, pupils chosen 5-9 times; and Area IV, pupils chosen fewer than 5 times.

boundaries and establish a mutual relationship with a pupil from another grade, as did Pupils 1 and 29. There is also a definite tendency for those who were capable in some activity to have higher scores than those who were not capable. Pupils 6, 25, 27, and 29 are examples of pupils who showed great academic ability. Pupils 11, 13, 14, 28, and 30 constituted the basketball team, and the close relationships among these five stand out. Pupils 1, 5, and 9, on the

other hand, are examples of pupils with meager or almost no ability to do anything well—well in terms of group approval. From all appearances, the boys in this sociogram were a more homogeneous group than were the girls. This finding seems to correlate with the teacher's observation. Although there is no clear cleavage between boys and girls in Grade VIII, most of their social relationships are still with those of the same sex.

In general, it may be assumed that the greater the number of choices received, the greater also the number of mutual relationships. In most sociograms this seems to hold true for Areas IV, III, and II. Area I seems to be an area of exceptions to this generalization. Pupil 25 in this sociogram bears out this point. Although he received a total of sixteen choices, he entered into mutual relationships with only two of the sixteen. His close friendship with Pupils 6 and 24 and a corresponding movement within a very narrow circle of selected friends led him to restrict his mutual relationships. Pupil 11, on the other hand, did not enter into such close friendship with any one or two pupils, moved within a larger circle (basketball players), and consequently seemed to be able to establish a larger number of mutual relationships. These data seem to suggest that the larger the circle within which one moves, the greater also the number of mutual relationships. The sociogram seems to indicate also that the personal influence of a member of the class must be measured by the number of social choices plus the number of mutual relationships and not by social choices only. Pupil 11, for example, is able to exert more influence on class opinion than is Pupil 25.

These observations raise numerous questions for the teacher. For instance, does the child need at least one friend in school? All signs seem to indicate that, unless a child has a friend—who may have to be the teacher—he will be seriously maladjusted. One of the most maladjusted children in this school is a seventh-grade boy coming from a broken home and having not a single friend in school. Unless we can solve his particular problem in the near future, he will become one of the dissatisfied and unhappy members of the community. Another question which arises for the teacher is the relationship of social happiness and academic work. Pupil 1, for example, did much better academically after the school had partially solved her problem of social relationships. Group work, in

the light of these observations, takes on added importance. In this situation it was found that pupils who were able to engage in some group activity improved in their social relations with the other pupils, not only with pupils of that particular group, but with pupils of the entire room. The most important question which arises for the teacher, however, is the problem of developing within each child the natural abilities which he possesses and of providing an outlet for these abilities in some form acceptable to the group. Children recognize ability to do things and tend to enter into social relationship with the child who possesses and demonstrates such ability.

FACTORS INFLUENCING SOCIAL RELATIONSHIPS OF CHILDREN

The discussion so far has dealt largely with the fact that variations in social relationships exist among the children. The logical question to follow is: What factors tend to produce good, satisfying social relationships and what factors tend to cause poor social relationships? As already indicated, the ability to do things is one of the most important factors that make for satisfying social relationships. This may range from the ability to play basketball to the ability to work arithmetic problems. As a matter of fact, the eighth-grade sociogram seems to indicate a close relationship between general ability, as measured by the group intelligence test, and the number of choices received. The average intelligence quotients in the separate areas were as follows: Area IV, 86.7; Area III, 99; Area II, 112.5; Area I, 111.5. If this relationship should hold true in general over a long period of time—and the present study indicates that it does hold true for the grades tested—one could conclude that the child with a low intelligence quotient is likely to have fewer social choices than is a child with an above-average intelligence quotient.

The teacher and the administrator are again faced with a number of questions: How many mutual social relationships make for a satisfying life in school? Does the bright child need more than the child of low mentality? Since all indications seem to point to a close correlation between intelligence quotient and number of choices, is it possible for the teacher to effect a satisfactory social

and personal adjustment for those of low mentality? If so, to what extent? In what grades are the school's efforts at personal adjustment of the children most successful?

Some of these questions can be answered rather definitely. In general the more social relationships, the happier the child, whether he is mentally bright or mentally dull. Unless other factors enter in, the brighter child is able to make a more satisfying adjustment than is the child with a low intelligence quotient. The earlier the attempt is made at improving the child's social relationship, the better are the chances for satisfying and lasting results. It has proved extremely difficult to effect good mutual relationships of maladjusted children in the upper grades.

Personal traits are also an important factor in achieving a high social-status score. Again it can be said that pupils having desirable character traits tend to rank high in the social-status scale. Although it would be difficult to single out any one definite trait, such traits as dependability, co-operation, cleanliness, maturity, courtesy, and general helpfulness are most frequently found in varying degrees in those pupils having high scores, whereas such traits, characteristics, and factors as chronic illness, instability, immaturity, excessive stubbornness, nonco-operation, nondependability, and uncleanness are found most frequently in those who have low scores. It is, on the whole, surprising how closely teacher and pupil opinion agree on personal traits.

The home environment of the child is a vital factor in the establishment of satisfactory social relationships in school. In this study all indications seemed to point to the fact that the personal relations within the home were more important than were the social and the economic status of the family. The reason for this evidently lies in the fact that almost all these children came from the upper-lower and lower-middle classes and, therefore, stood about an equal chance of obtaining a high social-status score. It can be said that the better the home environment (social and personal relationships within the home), the better are the chances that the pupil will obtain a high social-status score. It was found that pupils from homes where parents maintained unsatisfactory relationships, from broken homes, from foster-homes, etc., almost uniformly received low social-status scores. Pupil 12 in the eighth-grade sociogram, a highly intelligent girl, proved to be an exception to this general statement.

VALUES OF SOCIOMETRIC STUDY

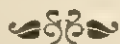
Employing the sociometric test in the classroom in this school has had the following practical values. (1) It has given a much clearer view of the entire problem of social relationships to teacher and administrator by placing before them definite and fairly accurate information and by forcing them to analyze the problems on the basis of this information. (2) Each teacher in the school has been made keenly aware of the direct relationships between his everyday teaching problems and the social adjustment of the children. This in turn has induced both teacher and administrator to do something about improving social relationships of the children through (a) greater emphasis on group work, (b) greater effort at developing individual abilities and talents, (c) giving more time to expression of abilities, (d) development of character, and (e) development of habits of cleanliness, etc. In some instances the social relationship has had a definite bearing on the promotion policy. (3) It has given the teachers and the administrator some accurate and vital information for pupil and parent conferences. In many instances it has forced the parent to take a more realistic view of his child and has resulted in a better adjustment of the child to the school and to his classmates.

The sociometric test is no panacea for the social ills of the classroom; it is merely an instrument for diagnosing some of the ills. At best it is a fairly accurate quantitative measurement, tending to equate the number of social relationships with social happiness. However, it must at all times be remembered that not every child needs fifteen or more choices to be socially happy in school and that not every child having fifteen or more choices is socially well adjusted. Nevertheless, within certain limitations, the sociometric test is an excellent instrument for measuring and interpreting the social relationships of the children within the classroom.

RUTH L. MONROE

Diagnosis of Learning Disabilities Through a Projective Technique

Standardized or teacher-made diagnostic achievement tests often reveal the reasons for the inadequate academic progress of a pupil. In such cases, individualized assistance or some modifications in procedures may lead to satisfactory progress. Often, however, the learning difficulty may originate in and be symptomatic of a basic personality problem. Here, adequate remediation calls for the assistance of specialized personnel. Dr. Ruth L. Monroe explores the possibility of identifying those children whose learning difficulties are functions of deeper-lying difficulties. The results obtained by her use of a modification of the Thematic Apperception Test also provide the student with some anecdotal illustrations of the ways in which personality problems relate to inadequate progress in school.



The close relationship between personality adjustment and learning is now widely recognized by educators and psychologists. Whether a child succeeds or fails in school seems to depend to a marked degree upon the quality of his early personal relationships. Whether or not the setting in which the child finds himself provides for him during his early formative years self-esteem, independence, and a sense of security consonant with his unique nature and needs, seems to determine the degree of school success or failure which he experiences.

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While individuals vary in their ability to adjust to childhood experiences, hundreds of studies of learning disabilities reveal that children who fail in school have met with more than the usual number of frustrating or fear-producing experiences. A great majority of school failures are fundamentally unhappy. Frequently, continued frustration has been found to produce feelings of inadequacy and insecurity sufficiently strong to prevent even very bright children from utilizing their full intellectual capacity. Thus, failure to succeed in school may be a symptom of a deep-seated personality disturbance.

Learning disabilities may frequently be symptoms as well as causes of a personality problem. Deficiencies which are allowed to persist tend to become deeply entrenched and increasingly tenacious. Compensatory attitudes or occasionally a deep-seated resistance may be set up by the child in self-defense.

Unless the basis of the child's disability is understood, remedial measures are apt to prove futile. The exclusive use of the intellectual or academic approach generally accomplishes little or nothing when academic deficiencies and personality problems are closely interrelated. Careful analysis and study of the case will usually reveal the general cause of the failure although specific causes may be elusive and difficult to trace. Well-tried approaches occasionally fail to get at the root of a deep-lying interference. In these extreme cases it is of vital importance to find the specific nature of the disturbance.

The originator of the technique outlined in this paper is ever on the alert for opportunities or measures which will assist in gaining an understanding of the attitudes and innermost feelings of each remedial pupil. The projective technique which follows, a modification of the Thematic Apperception Test, has proved to be very helpful in that frequently subjects to whom it has been administered have ascribed to the children of the pictures their own feelings, attitudes, needs and fears, thus providing clues to a better understanding of the personality problems which lay at the root of their learning disabilities.

For use in this test pictures of individual children approximating as closely as possible the age and socio-economic status of the subjects were selected from current magazines. Each picture was carefully trimmed and mounted to give the appearance of a photo-

graph. The children of the pictures ranged from approximately seven or eight years of age to adolescence. Pictures selected were devoid of distracting backgrounds and exhibited in their subjects a minimum of facial animation or bodily activity.

Each subject was permitted to choose the picture for his own story. He was asked to pretend that the child in the picture was having difficulty with his school work. The subject was then asked to compose a story explaining the origin and the nature of the child's trouble. Three areas of approach were suggested—the child's home, his school or his relationship with other people. He was encouraged to imagine a situation centering in one or more of these areas.

The protocols which follow were selected and recorded verbatim from those written or dictated (in cases of very young children or those with extreme deficiencies) by pupils of the public schools of Greenwich, Connecticut. All of these children had failed to progress adequately even with differentiated classroom instruction, and had been referred to this remedial teacher because of the serious nature of their learning disabilities.

TED, AGE 11

Story. The picture you see above is a boy that is not happy. He probably has a father that is always nagging him. Every minute he does something he had to watch out for a mistake. All he has is worries. And he probably will tell you he has no time for studies. A boy has to have a happy home to be smart, willing and understanding. This often deprives (spelled "dripes") him of many things. He is never happy. Sometimes he does not want to learn.

(There was an extremely belligerent expression on Ted's face while he was writing his story. He was very rude to a classmate who spoke to him while he was writing. Later he declined to discuss his paper and left the room apparently in a preoccupied mood.)

Personal History. Ted and his father moved to this community about a year and a half ago. His father is a bus driver and until his discharge at the close of the War served in the Navy. During his absence Ted was placed in the care of relatives or at boarding homes. It is reported that he was frequently beaten while in these foster homes.

Ted's mother deserted the family when he was two years old. When asked about his mother he says she is dead although there is reason to believe that he is aware of the true situation. There are

two older sisters living apart from the home which Ted's father maintains for himself and the boy. One of the sisters is married but is separated from her husband.

Ted has an IQ of 112. He is at present in the 6th grade. Last year when he entered this school system he was severely retarded in arithmetic. He lacked a foundation in the fundamentals of number. His arithmetic achievement rated at approximately grade 3.0.

The boy has a friendly, likeable personality but is frequently in trouble because of his behavior in school or on the street. He has a tendency to be a bully. At other times he complains of all sorts of illnesses. Some of his complaints seem to be legitimate though his ailments tend to be short lived. He makes many unnecessary trips to the school clinic.

Remedial treatment has corrected his defect in arithmetic sufficiently for him to perform at a 6th grade level but he is still not utilizing his full ability. While he is no longer a regular remedial pupil, he is left free to bring problems of any nature to this remedial teacher when they prove to be too great for him to work out independently. The visiting teacher also serves as a counselor if Ted chooses to go to her on the one day of each week which she spends in that particular school.

Ted's father is inconsistent in his treatment of the boy. Frequently he takes the boy along with him on week-end excursions from which they usually return late Sunday nights or early Monday mornings. Ted is always well groomed and to all outward appearances lacks none of the material necessities which a boy of his age should have. Also his father makes it possible for him to engage to a moderate degree in sports and recreational activities. On the other hand, he will beat him upon the slightest provocation. The violence and impulsiveness with which the father has punished the boy have caused his neighbors to complain to school authorities on more than one occasion.

INTERPRETATION OF STORY. Ted's story reveals an awareness of his great need for an understanding parent. He also appears to realize that his unhappy home situation has been a strong factor in bringing about his learning disability. This psychological principle has never been discussed with him as far as is known. However, the remedial approach has been one of assurance as well as one which has encouraged Ted to expect success and to regard himself as intellectually capable of meeting his school requirements. The lack of self assurance which Ted feels is doubtlessly caused to a great degree

by the lack of confidence he has in his father. His fear of the father's erratic treatment expressed in the protocol by "Every minute he does something he has to watch out for a mistake" indicates the strong need for understanding and sympathetic guidance in the home. The father's failure to be honest with Ted concerning his mother's absence has contributed also toward the boy's attitude of insecurity and hostility. Although the absence of the mother was not mentioned in the protocol, possibly the boy blames the father for the deprivation he suffers.

It isn't difficult to recognize that the general cause of Ted's academic and behavioral problems stem from his need of security, sympathetic guidance and reassuring home conditions but how the unfulfillment of these needs specifically set up interferences or resistance to learning can but be speculated upon at this time.

How great a part does the father's ambivalence play in paralyzing the boy's efforts and in making concentration difficult? To what extent are Ted's poor grades conscious or unconscious methods of punishing his father? What part do his own guilt feelings play in the picture? Without doubt Ted feels very guilty about his thoughts concerning his father as well as about his failure to meet school and social standards.

At this stage one can but wonder as to which role, cause or effect, poor school grades play in the conflicts which have arisen in this unfortunate situation. Of this we may be sure, that the boy's expressed need for assurance and understanding as well as for the opportunity to be at ease in his father's presence, will serve as clues for guidance workers to follow as they work with Ted and his father.

PATRICK, AGE 9

Story. I know why he has trouble with his work. He don't feel good. His mother wouldn't let him do anything. His mother wouldn't let him play football.

He was always thinking of baseball and football. He couldn't think about his work. Maybe he thought he was going to die. (No, don't say that.)

Everything he wanted to do was for bigger boys. He was too small to do the things he wanted to do. Other boys asked him to play games and he couldn't. I keep thinking he was going to die. He wasn't strong. This made him unhappy so he couldn't read.

Personal History. Patrick, the surviving child of twins, was pre-

maturely born of an alcoholic mother. Weighing but 31½ pounds at birth he was kept in an incubator for months. Many times has the mother been observed to relate in the boy's presence the story of the sacrifices she made to save his life. Her stories of sleepless nights, of long hours of tedious preparation of his food which had to be fed to the baby in minute quantities are punctuated by frequent mention of her fear of losing him. Invariably she concludes her tales of hardship by contrasting the amount of care Patrick required with that needed for his younger sister. The listener cannot fail to observe hostility in the mother's attitude toward the boy or her preference for the sister who has caused her little trouble and has progressed normally in school.

The boy's father is a laborer. The family live in a small flat above a store. On occasions when home visits have been made by school nurses or workers, sounds indicating general confusion and resembling the clinking of bottles or glasses have been observed before the door of the home has been opened by members of the family.

Since he entered school Patrick has been regarded as being mentally deficient, because in behavior and appearance he resembled the typical feeble-minded child. He appeared diffident, extremely conformative, and seemed to be inferior in intellectual ability. Powers of recall and retention seemed to be especially weak. While his school material was adapted to his level of performance all during his four years in school, no attempt was made to study his case until he was referred to this remedial teacher at the beginning of this school year.

His case has been a stubborn one. At first he seemed incapable of sufficient ability to read independently even on a pre-primer level. He could not recall what he had read with help the day before. While he seemed interested and especially anxious to learn he showed little indication of comprehending the content of the reading material.

At the same time Patrick seemed to be deeply disturbed about his failure. He flushed easily and exhibited many mannerisms which ordinarily reflect sensitivity to one's inadequacy. This remedial teacher's hunch that the boy had more ability than appeared on the surface spurred her to persist in spite of the apparent hopelessness of the outcome. Every available method of arousing interest and of developing self reliance and self esteem were utilized. Weeks went by with no apparent headway. The boy's classroom teacher was very co-operative. Her reassuring manner and provision of opportunities for the boy to participate, contribute and succeed in his classroom co-ordinated with the efforts of the remedial teacher finally brought about a sudden marked change in the boy's reactions and behavior.

Now at the end of eight months of remedial instruction Patrick has progressed more than two years in reading level. He seems less withdrawn and shows fewer signs of tension. Slowly he is becoming better adjusted socially. His success has, however, caused him to appear "cocky" and to read so rapidly that he is often inaccurate.

INTERPRETATION OF STORY. Patrick's story projects his awareness of the relationship between his inadequacy and the immature role which has been imposed upon him by his mother. He feels resentment at having been overprotected. The intimate interrelationship between his early physical weakness which led to feelings of inadequacy as he was overprotected and rejected by the mother and his inability to succeed in school are apparent. Poor health, lack of self confidence, lack of social status and lack of parental reassurance and affection all added possibly to the fear of dying tended to interfere with Patrick's progress.

Until this year the boy has not felt equal to his peers. Now his low evaluation of himself is changing.

Patrick blames his mother for his feelings of inferiority and inadequacy. Perhaps, too, he feels that his mother's addiction to alcohol has contributed in causing the handicap which has made society treat him as a misfit. Whether his reference to dying indicates a fear of death or an evaluation of self as one who is dead is a matter for conjecture.

TOM, AGE 9

Story. He looks as though he didn't get much care. His eyes look baggy. He has black circles under his eyes. He looks like he is worrying. Someone in his family weren't so good to him. They come from different countries. They don't act just right. His mother and father got a divorce. They are separated. He is not happy by a long shot.

He is a poor reader because his parents don't agree. His mother don't give him help because she is worried about whatever happened to him.

Personal History. Tom, who is a quiet, well poised boy, is an only child. Both parents, who are very young, work regularly, leaving the boy in care of relatives during the day. When they moved here from a western state about a year ago the level of Tom's school achievement was found to be seriously retarded for a boy of high average intelligence—IQ 112—so he was referred to this remedial teacher. At the time of the diagnosis of his difficulties his pallor, his tendency to fatigue and the dark circles under his eyes caused this ex-

aminer to request a complete physical check-up. A medical examination revealed the presence of a glandular difficulty (bilateral cryptorchidism) for which he is now being treated by weekly injection of hormones.

Tom is developing the tendency to daydream. Of late he has found it difficult to stick to a task. This is unusual for him as his main strengths in school have been his ability to work independently and to maintain concentrated attention.

INTERPRETATION OF STORY. In the story Tom projects his own physical appearance upon the boy in the picture. Whether or not the worries of the boy in the story reflect his own situation is not known. Not enough of the family history is available at this time. However, we do know that the mother's sister has just obtained a divorce and that this has disturbed his mother.

That his own mother "is worried about whatever happened to him" to cause his glandular difficulty we also know. Moreover, she has felt embarrassed that she hadn't recognized the abnormality of Tom's sexual development before it was called to her attention. However, she has until just recently devoted time regularly each evening to helping Tom with his reading. For the past two or three weeks, however, he has failed to return the books which were taken home. When questioned he replied that he didn't have time to do anything and that his mother had not listened to his reading.

Tom's references to his worries will serve to keep this remedial teacher alert to any opportunities for assisting the parents in relieving the boy of any possible feelings of insecurity or rejection which he may have.

BOB, AGE 11

Story. (A colored picture of a boy with auburn hair) This boy was 12 years old. He did well in every other thing in school except reading. If he could do well in other things he should do well in reading.

When he was younger in the first grade he had a bad teacher. He did not like her. When he did good work the teacher didn't bother but when he did bad work she scolded him. She said yah-yah. So he didn't try because when he did she didn't pay any attention.

He didn't want to read when he was in the first grade. Maybe he did want to know but didn't know how.

Lots of time he didn't come to school because he missed the school bus. He lived a long way from school. His mother had too

much to do. There were ten children. There were two babies and his mother didn't have time to help him.

When the boys were first in school he was just thinking about times when he was small. He thought about being on the farm feeding the chickens, playing with the rabbits and hiding in the hay pile. He needed help from his mother.

In this picture he had a paper in his hand. It is his report card and he has very bad marks. He tries to do good work but he can't because he didn't listen in the beginning.

He got bad in practically all subjects but he worked all of them up back where they should be except reading because he thought they were more important. But he flunked in reading.

He has been trying and is getting better marks. He went to a reading teacher and she got him back where he should be. She always told him he could be the best reader in the class. He has a teacher now who cares when he gets good marks so he tries harder.

(After rereading his story Bob exclaimed, "Gosh, do you see what I did? I told about myself, but not exactly.")

Personal History. Bob is 11 years old and is in the 5th grade. In spite of his IQ of 134 his reading level is but a low 3rd grade. He dislikes reading intensely and resists all efforts to help him.

Bob is a handsome boy with chestnut hair. He gained fame as a baby when his picture was printed in the New York papers as having received first prize in a baby show. This has made a great impression upon the boy. He has a pleasant personality with a suave manner that is often disarming.

There are six children in this easy-going financially comfortable family. Evidently Bob, like one of his older brothers, has failed to develop a pride in being able to accomplish a task independently. Both boys seem to expect the end results and rewards for their efforts to drop into their laps. Their parents provide for them all sorts of advantages and toys. For example, each year the three older boys are taken north by their father for instruction in skiing. The two youngest children, mere babies, are very close in age.

Bob's family have moved several times to and from various sections of the community since he entered school so he has been forced to change schools a number of times.

INTERPRETATION OF STORY. By means of the boy in his story Bob projects his awareness of the inconsistencies which exist between his capabilities and his failure to succeed in school work.

Bob's reference to first grade reading is significant. First he said he "didn't want to read" and then he modified his statement by

saying "Maybe he did want to but didn't know how." Here we see signs of defense which may have helped to build the resistance which the boy has developed. He says he didn't try because the teacher didn't pay attention to his efforts. Later he regretted that he hadn't listened in the beginning. Feelings of self blame and conflict which are here indicated may have also contributed toward increasing the barrier which has kept Bob from progressing.

When questioned as to whether the experience related was a real one Bob remarked that until now he had "almost forgotten about it" but that it was true. He spoke fervently about the situation. He mentioned the name of the school but was not encouraged to reveal the name of the teacher.

Evidently the mother plays a strong part as a factor in the disturbance which has contributed to the reading defect. Bob's dependence upon her is evident. He took for granted that she would get him out of his predicament.

Bob's case is a glaring example of the way in which feelings of insecurity and conflict, if allowed to persist, may develop into a powerful resistance to learning as an individual attempts to find satisfactory outlets.

SUMMARY

The results of this attempt to use a projective technique as a means of diagnosis when children fail academically seems to indicate that when children who have learning disabilities are asked to interpret similar difficulties of other children represented pictorially, they tend to project parts of their own past history. Several individuals appeared to recognize a relationship between personality problems and academic problems. In identifying themselves with children of the pictures some of the subjects who took part in this study attributed the child's failure to inner needs which could very well account for their own symptoms and behavior. In at least one case the writing of the story was effective in stimulating catharsis of repressed feelings of hostility. In others repressed memories long unavailable to consciousness were brought to light. The use of this modification of the TAT adapted to the needs of children with learning disabilities seems to be valuable as an aid in therapy as well as a method of analysis.

Form No. 3.

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